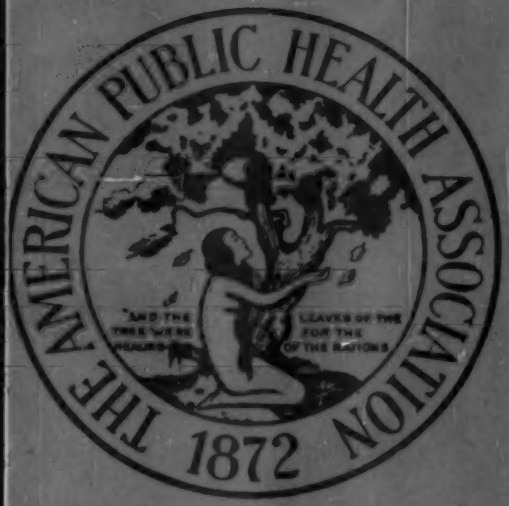
American Journal of

PUBLIC HEALTH

and The Nation's Health



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volume 47

number 8

Non-Corrosive PENNSAN...
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Here's a bulk tank sanitizer with nine intensive years of research and field testing behind it. Pennsan, Pennsalt's new non-corrosive sanitizer, is a light amber liquid with orthophosphoric acid and an anionic wetting agent as the active ingredients. It is considered to be a new concept in this field, offering superior benefits over other types of products on the market today.

The bactericidal properties of Pennsan have been established by the company's Whitemarsh Laboratories with the widely-used and accepted Weber-Black technique. The tests show faster kill on specified organisms, in every case, than required by the revised Appendix F, U.S.P.H.S. Ordinance and Code. It is equally effective on psychrophilic bacteria. Further proof of highly effective sanitizing power has been shown in rigid field tests under actual dairy farm conditions by a well known university and Quality Control Laboratory.

It has further been established by Whitemarsh Laboratories that Pennsan does not attack stainless steel. These findings have been confirmed by manufacturers of bulk tanks and dairy equipment.

Pennsan also retains its bactericidal effectiveness even after drying on stainless steel for as long as 24 hours. Additionally, Pennsan is particularly effective in hard water, as well as cold water; and due to the low pH of use solutions, the costly problems of films and milkstone caused by hard water salts are eliminated.

Pennsan is especially recommended for sanitizing bulk farm tanks and tank trucks. It is equally effective on utensils, and all dairy and food plant equipment after thorough cleaning. These recommendations are supported by quality control tests conducted by an independent laboratory serving the dairy industry in a five-state area.

Contents are stated on the label. According to the manufacturer, Pennsan* should be used one ounce to one gallon of water. This use solution has a pH of 2.1 and contains 215 p.p.m. anionic wetting agent.

A test kit is available for determining the parts per million of the sanitizing agent in the use solution of Pennsan. The solution should be discarded when test indicates available sanitizer is 100 p.p.m. or less.

An authority in the field of preventive medicine has already reported that a use solution of Pennsan imparts only slight and temporary irritation of the cornea when tested in the eyes of rabbits. The effect is compared to that of soap.

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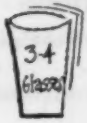
Vitamin C recommendations for peak intakes of adolescence or pregnancy

(100 mg. per day)* are supplied by (7-9 fl. oz.)

of citrus juice. But it takes of apple juice, or

of grape juice, or  of pineapple juice, or

of prune juice to supply this amount of vitamin C.†

* During lactation Recommended Daily Allowance for vitamin C is 150 mg.; for normal adults, 70-75 mg.

Florida Citrus Commission, *Lakeland, Florida*

† Data calculated from: Watt, B. K. et al., U. S. Dept. Agric. Handbook No. 8, 1950; and Burger, M. et al., Agr. & Food Chem. 4:418, 1956.

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Official Monthly Publication of the American Public Health Association, Inc.

Volume 47 | August, 1957 | Number 8

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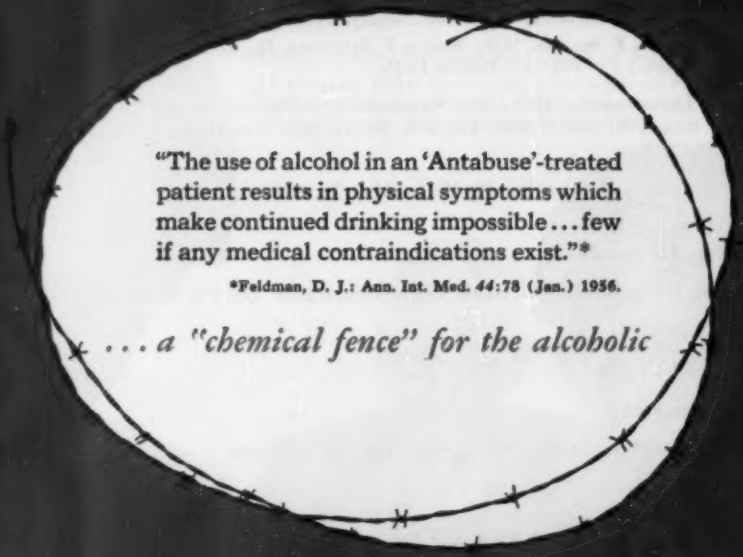
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1. American Heart Association: Committee on Prevention of Rheumatic Fever and Bacterial Endocarditis, Charles H. Rammelkamp, Chairman: Circulation *15*:154 (Jan.) 1957.

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1. J. Lab. & Clin. Med., *45*:679, 1955.
2. Bull. World Health Organ., *10*:623, 1954.

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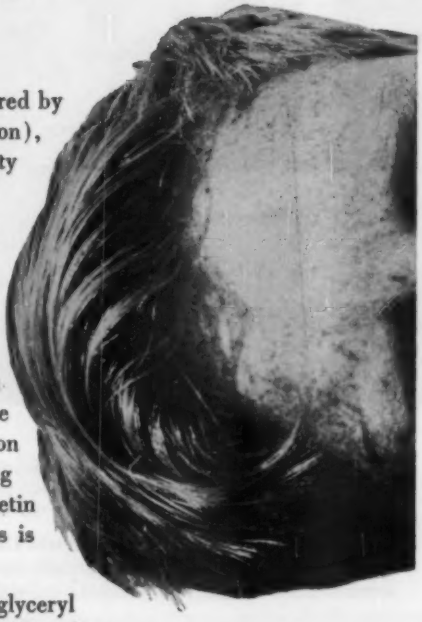

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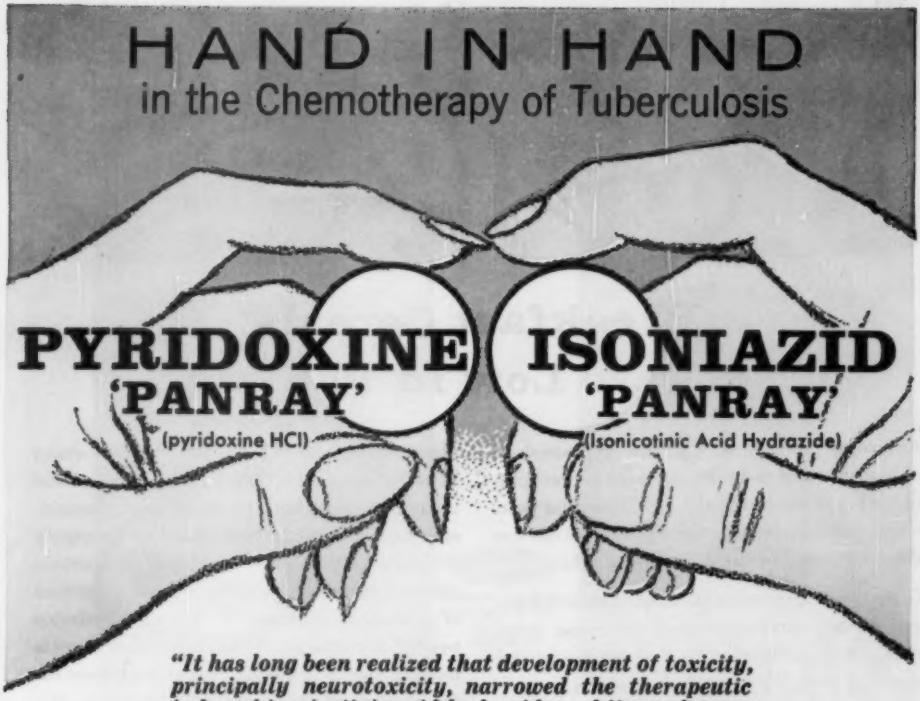

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[1]Sea View Bulletin 16:62 July '56 Tcheriteff, et al. JAMA 156:1549 (Dec. 25) 1954 Biehl & Viltner Am. Rev. TBc 70:266 Aug. '54 Hughes, et al. N. Eng. J. of Med. 255 #3 118-122, 1956 Carlson, et al.

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At leading professional meetings, in professional journals, and in health columns and articles in the lay press during the year, there has been a noticeable increase in the tendency to discuss the fat content of the daily food intake.

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**Cereal Institute, Inc.: The Nutritional Contribution of Breakfast Cereals. Chicago: Cereal Institute, Inc., 1956.*

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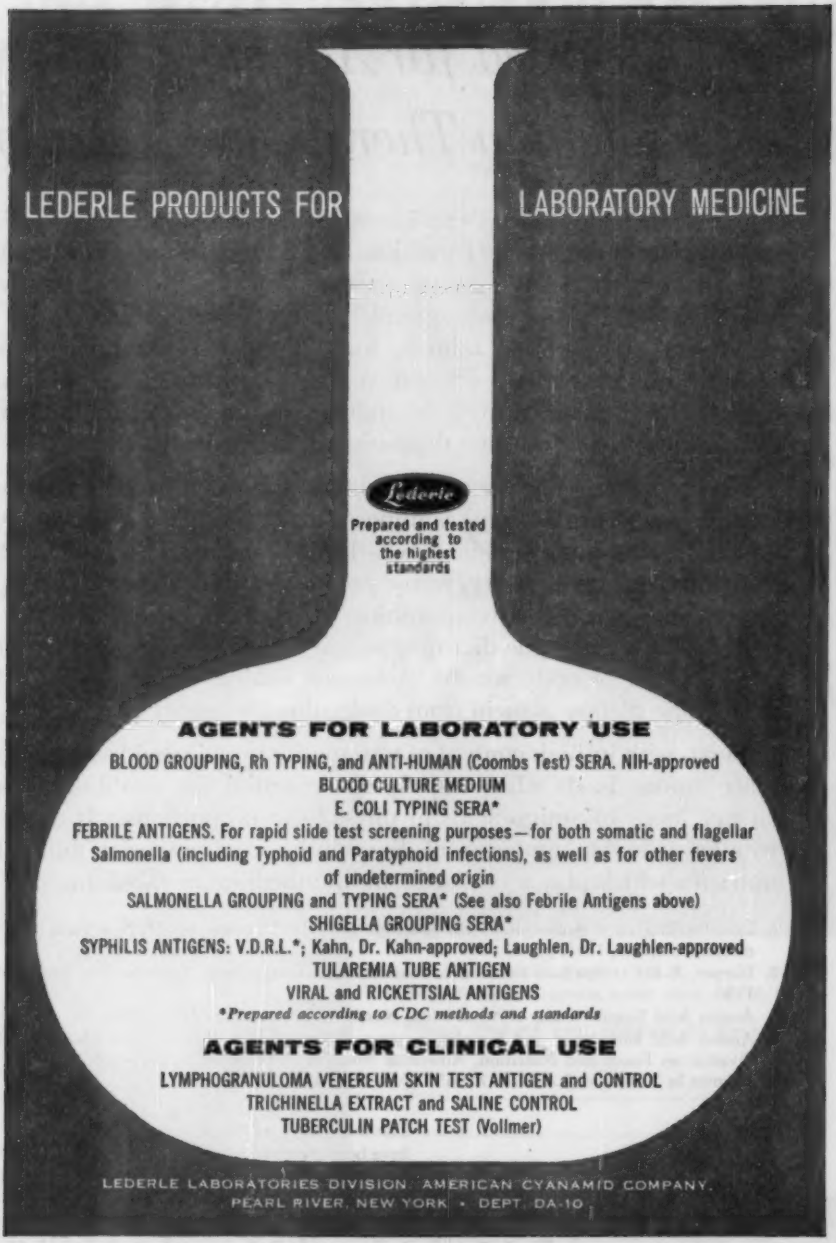
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---

1. Proudfit, P. T., and Robinson, C. H.: Nutrition and Diet Therapy, ed. 11, New York, The Macmillan Company, 1955, pp. 314-320.
2. Harper, A. E.: Amino Acid Imbalance, Toxicities and Antagonisms, Nutrition Rev. *14*:225 (Aug.) 1956.
3. Amino Acid Requirements of Adult Man, Nutrition Rev. *14*:232 (Aug.) 1956.
4. Amino Acid Imbalance and Supplementation, Editorial, J.A.M.A. *161*:884 (June 30) 1956. Council on Foods and Nutrition, American Medical Association: Importance of Amino Acid Balance in Nutrition, J.A.M.A. *158*:655 (June 25) 1955.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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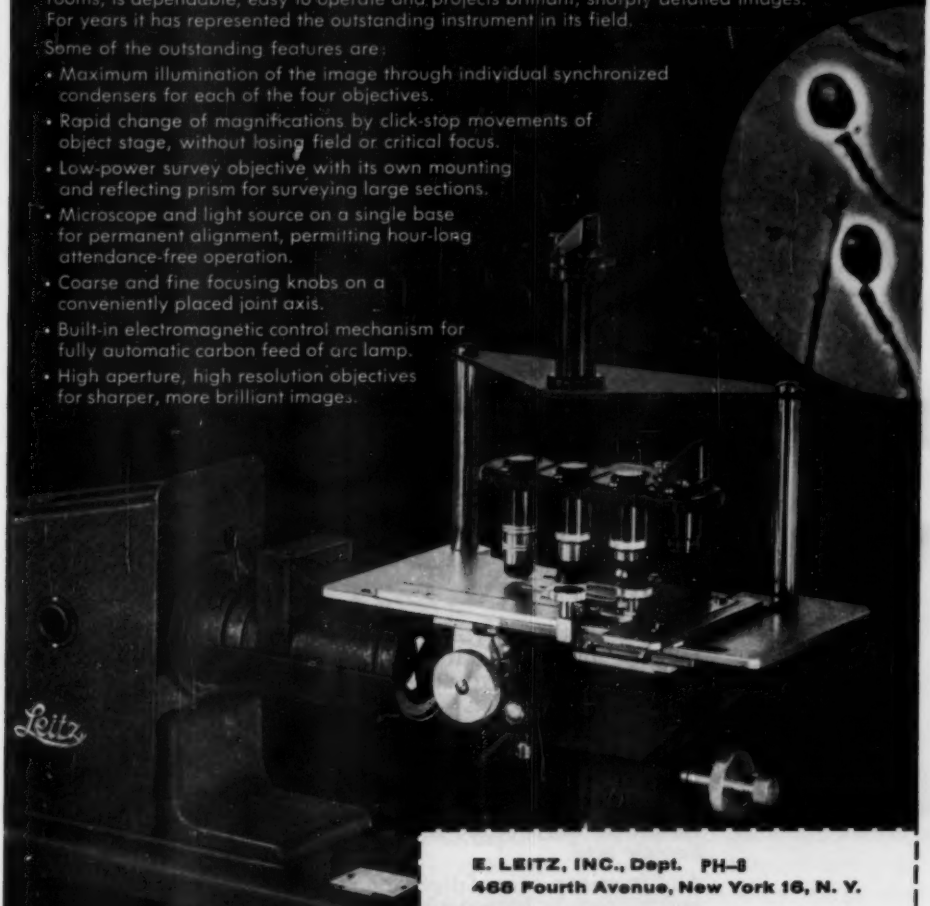

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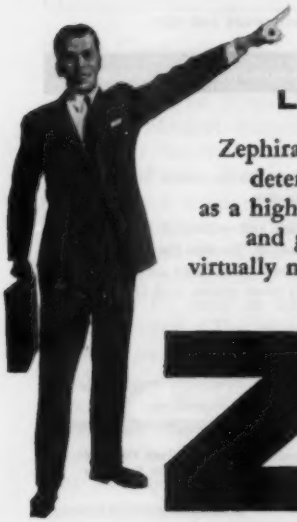

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A Survey of Mental Disease in an Urban Population

I. Prevalence by Age, Sex, and Severity of Impairment

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The finding that a tenth of the people in this sample of a city's population have one, or more, well defined mental disorders is alarming and suggests both more research and more community action.

The Commission on Chronic Illness, an independent agency founded jointly by the American Hospital Association, American Medical Association, American Public Health Association, and the American Public Welfare Association, financed by a series of grants from the National Institutes of Health and the Commonwealth Fund has completed a study of the prevalence of chronic illness and needs for care in an urban area begun in 1952. The objectives of the investigation started in Baltimore were broadly: to determine the prevalence of diagnosed and asymptomatic chronic disease and resulting disability, and its variations by socioeconomic distribution; to estimate rehabilitation potentials; to evaluate multiple screening methods; and to develop new methods of studying the chronic disease problem. The study was planned and carried out in four phases, of which only the first two are of relevance to this report and will be described briefly.

Step 1 was a household canvass carried out in the classical morbidity sur-

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This paper was presented before a Joint Session of the National Conference for Health Council Work and the Epidemiology and Mental Health Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 15, 1956.

vey method by trained lay interviewers under the direction of the United States Bureau of the Census on approximately 4,000 households, including about 12,000 people representing a random sample of the population of Baltimore. Persons in medical institutions for long-term care, including mental hospitals, were not sampled. The sampling procedures, interview methods, preparation, and findings will be described in detail in future reports of the Commission.* At this time it is sufficient to state that the sample surveyed was a probability sample of the city's population in terms of age, race, and sex characteristics, and that interviews were completed in 97.7 per cent of the addresses selected for sampling.

Step 2 consisted of the "clinical evaluation" of a subsample. About 10 per cent of the basic survey group of 12,000 were chosen as the sample for this step. They were stratified in the following manner so that the bulk of the intensive evaluation would be devoted to persons with substantially disabling health conditions as determined by the household interview data: 100 per cent of the persons reporting maximum disability; 100 per cent of those reporting diabetes, CNS disease and neoplasm, 40 per cent of those reporting heart disease, 25 per cent reporting arthritis and rheumatism, 7 per cent of those reporting all other diseases; approximately 6 per cent of the remainder reporting no disease or only short-term or nondisabling conditions.

Of this stratified subsample, 731 individuals were examined at the Evaluation Clinic, 33 were examined at home, and an additional 45 whose current medical data were secured from physicians in hospitals in sufficient degrees of completeness were included to make a total of 809 and a response rate of 62.6 per cent. The report presented here will be limited to the data on mental illness gathered from step 2 of the Chronic Disease Commission survey. Details of subsampling, field work, evaluation, staff, and findings will be found in later reports of the Commission.

Briefly, the evaluation of the persons in this step was carried out at the Johns Hopkins Hospital by a panel of physicians specializing in internal medicine or pediatrics who were either full-time fellows in their respective departments or physicians in private practice with hospital staff appointments. These physicians performed the physical examinations and ordered any consultations, including psychiatric, or special diagnostic tests needed to clarify the medical status of the patient. A number of additional routine procedures were carried out, in all, requiring some three to four hours for the complete clinic evaluation. For each evaluee, the examining physician completed a record in which significant chronic conditions were analyzed in terms of severity, history, disabling effects, treatment and care required, and prognosis. Each record was reviewed by the rehabilitation counselor to identify those who had any potential for rehabilitation and a home visit made by a counselor on these cases. Half of each of group 1 and group 2 described above were randomly selected and in those who showed significant health disability a thorough home investigation was made by either a public health nurse, social worker, or rehabilitation counselor, depending on the greatest apparent need. The records of all these cases so investigated were reviewed by the Commission staff and the home investigators to establish or confirm all the existing noted conditions.

After thorough perusal of the case material, the impressions, and the diagnoses, every record which contained any material which might pertain to

* "Chronic Illness in a Large City," Vol. 4 of Chronic Illness in the United States, to be published this year by the Commonwealth Fund and the Harvard Press.

some factor associated with the possibility of mental illness was turned over to the psychiatrist for his "clinical evaluation." Approximately one quarter of the step 2 subsample cases were so reviewed. On the basis of the material contained in these records diagnoses of mental disorders were made using the definitions contained in the 1952 "Diagnostic and Statistical Manual" of the American Psychiatric Association.

Diagnoses were not allowed to stand unless the data recorded in the medical records supported the diagnosis. This resulted in a third of the patients (32 per cent), for whom the examining physician recorded a psychiatric diagnosis, having the diagnosis deleted on review by the psychiatrist. Change from one diagnosis to another was not accounted as a deletion. It is possible that some psychiatric diagnoses made by the examining internist were deleted merely because all the information available to the internist was not recorded and therefore was not available to the reviewing psychiatrist.

Examining internists recorded "impressions" but not diagnosis of psychiatric disease for 24 patients. For ten of these patients the reviewing psychiatrist considered the record and the data as supporting a diagnosis of psychiatric disease. Four additional diagnoses of psychiatric disease were made by the reviewing psychiatrist through changing a single diagnosis made by the examining internist into two psychiatric diagnoses, or by making a diagnosis in cases selected by the medical editing staff as probably involving psychiatric disease. In general, the effect of the review by the psychiatrist was to reduce substantially the figures on prevalence of psychiatric disease.

In addition, it must be noted that the findings to be presented represent prevalence as of the date of clinical evaluation, rather than the "lifetime" prevalence which some studies have reported. Some diagnoses were deleted because it was felt that there was no psychiatric illness present at the time of examination although this had probably been present sometime in the past and might be again in the future. Along with diagnostic ratings the psychiatrist made judgments of severity based on the degree of psychiatric impairment scaled in the diagnostic and statistical manual of:

a. no impairment—where there were no medical reasons for changing employment or life situation

b. minimal—indicating incapacity of perceptible degree but not to exceed 10 per cent

c. mild impairment—in social and occupational adjustment of 20 per cent–30 per cent disability

d. moderate—indicating serious interference with a patient's ability to carry on premorbid social and vocational adjustment and having a 30 per cent–50 per cent disability rating

e. severe—indicating that for practical purposes the patient could not function at his premorbid social and vocational levels and had over 50 per cent disability.

Findings

The findings to be offered in this preliminary report will be limited to the prevalence of psychoses, psychoneuroses, and psychophysiologic autonomic and visceral disorders in our total sample of examined patients and distribution by sex, age, and severity of impairment.

They do not include the category of "other mental psychoneurotic and personality disorders" which will be included in the general Commission report. This category which includes a number of childhood behavior disorders, mild mental defect, alcoholism, and other minor personality or behavior difficulties and has an adjusted rate of 15.2 per thousand is excluded from this report because the judgments of both the examining physicians and psychiatrists are probably not very reliable. This is particularly true in most of the judg-

Table 1—Prevalence of Mental Disorder as a Rate per 1,000 Persons Evaluated, by Diagnosis and Sex

Diagnosis	Number of Cases Unweighted	Rate Based on Weighted Number of Cases		
		Both Sexes	Males	Females
Total	86	93.4	60.5	123.1
Psychoses	17	4.3	6.0	2.7
Psychoneuroses	51	52.6	35.6	68.0
Psychophysiologic Autonomic and Visceral Disorders	18	36.5	18.9	52.4

ments of mental deficiency and psychopathic personality. It was therefore thought best to confine this paper to those conditions generally considered as obvious mental illness.

The step 2 clinical evaluation sample was selected in such a fashion that adjustment of the data for differences in sampling proportions of the various groups and for differences in the proportions participating could be done through the application of weights. This permitted expression of the findings of the clinical evaluation in terms of the approximately 12,000 persons surveyed in step one, who in turn were found to be very similar to the total population of the city in terms of age and color. After proper weighting our 809 evaluees were found to be distributed almost identically by age, color, and sex with the household survey sample. To the extent then that their distribution by these characteristics was significantly related to mental health, this sample is representative of the mental health of the noninstitutionalized population of the city of Baltimore.

Table 1 presenting total prevalence and prevalence by sex of the clinical entities under consideration indicates that after conservative estimation approximately 10 per cent of a noninstitutional urban population are at one moment in time mentally ill. There is approximately 12 times as much psychoneurosis as psychosis while psychophysiologic autonomic and visceral disorders are two-thirds as common as the neuroses. Male psychoses appear to be

Table 2—Mental Disorders Classified by Severity of Impairment as Defined by the American Psychiatric Association

Diagnosis	Number of Cases Unweighted	Percentage Distribution by Severity of Impairment Based on Weighted Number of Cases					
		Total	None	Minimal	Mild	Moderate	Severe
Psychoses	17	100.0	–	3.6	6.5	22.7	67.2
Psychoneuroses	50 *	100.0	20.5	47.8	22.8	6.0	2.8
Psychophysiologic Autonomic and Visceral Disorders	18	100.0	23.2	34.1	35.3	1.8	5.5

* Excludes one case with unknown severity.

Table 3—Prevalence of Mental Disorder as a Rate per 1,000 Persons Evaluated in Each Age Group

Diagnosis	Number of Cases Unweighted	Rate Based on Weighted Number of Cases				
		All Ages	Under 15	15–34	35–64	65 and Over
Total	86	93.4	8.3	147.9	113.6	98.6
Psychoses	17	4.3	–	0.4	5.8	27.8
Psychoneuroses	51	52.6	8.3	68.8	69.2	70.8
Psychophysiologic Autonomic and Visceral Disorders	18	36.5	–	78.7	38.6	–

twice as frequent as those in women, but, because of the small numbers involved probably is not statistically significant. On the other hand, females have more psychoneuroses and psychophysiologic autonomic and visceral disorders.

Table 2—mental disorders classified by severity of impairment—indicates as might be expected that the psychoses were generally classified as being moderate to severe, while the psychoneuroses and psychophysiologic, autonomic and visceral disorders had either no significant impairment or ranged up to and including mild impairment with below 30 per cent disability.

In Table 3 we present the prevalence of these types of mental disorder by age group. Psychoses rise precipitously with increasing age. With no cases under 15, only 0.4 per thousand in the age group 15 to 34, increasing 14-fold in the group 35 to 64, which in turn is multiplied by five in the group 65 and over. In contrast, the psychoneuroses are almost uniformly distributed in the age groups over 15, but are less than 0.1 per cent under 15. The psychophysiologic disorders exhibit an entirely different pattern of distribution with no cases reported under 15 or over 65, but with significantly more cases in the 15 to 34 group than in the 35 to 64.

Discussion

Before entering upon a discussion of the implications of these findings some comment on the limitations of the investigation other than the somewhat small numbers involved seems to be in order. Except for one characteristic, Baltimore differs very little from other urban centers, or indeed the rest of the country in respect to age distribution and family income. However, it does differ markedly in having a higher proportion of nonwhites, 26.7 per cent as contrasted to 13.2 per cent in all cities over 100,000 population in 1950. As will be demonstrated in a forthcoming paper, this characteristic tends to lower prevalence rates in our survey.

As was indicated before, the "response rates" for the clinical evaluation was 62.6 per cent. Unexpectedly, there was no significant difference in the response rate according to degree of disability and even absence of disability. There were, however, significant differences by age, color, and sex, the rates being higher for children and lower for the aged, higher for the nonwhites and slightly higher for males. With a nonresponse rate of 37.4 per cent the question of bias must be considered carefully. Using the data from the household survey for both respondents and non-

respondents it becomes possible to evaluate to some degree the bias due to nonresponse. Chronic conditions were reported during interviews at a somewhat higher rate, but on the other hand days of disability were reported at a slightly lower rate, for the 809 individuals clinically evaluated (after weighting) than for the total survey sample. Our conclusion is that the amount of bias for all chronic disease due to nonresponse is probably quite small, and that the interview data available do not establish with certainty the direction of bias, though it seems likely to be in the direction of a little more disease among the persons clinically evaluated than among the total survey sample.

What can be said of the bias introduced by the method of having the original diagnostic impression made by a nonpsychiatrist and supplemented by information from other sources? Very little, but impressions can be offered on this score. Since a fairly sizable group of physicians were employed in the clinical evaluations, it might be expected that considerable variation in psychiatric judgment and evaluation existed. These were largely well trained and sophisticated young individuals alert to the psychiatric implications of illness. The impression is that the total direction of bias may be slightly toward overdiagnosis of mental disorder. There is some support for this in the finding that there was no significant impairment in over a fifth of the cases of psychoneuroses and psychophysiologic disorders, while an additional two-fifths had only minimal impairment. On the other hand, the psychiatrist reviewing these cases and eliminating approximately a third where a diagnostic impression of mental disorder was made, because of lack of recorded supporting evidence or differing opinion, probably deleted a number of cases which on closer scrutiny and examination might have been included as mental disorders. The reliability of judgments of physicians and psychiatrists was not tested.

The total bias and direction is quite difficult to estimate. It may very well be that there is some tendency toward underreporting. However, this is not judged to be very great and in any event nothing like the reports of approximately two-thirds of the population being mentally ill, as indicated in two recent surveys is approached. Our findings that approximately a tenth of an urban population have one or more of the relatively well defined mental disorders is sufficiently alarming and one obviously calling for serious and prompt consideration.

What explanations or hypotheses can be offered for some of the differences found in the sex and age distributions of mental disorder? The nonpsychotic mental illnesses have almost universally been described as being more frequent in women. We still have no good hypothesis to offer except the one that it is culturally more acceptable for a woman to have emotional difficulties than for a man. Could it also be that the heavier load of nonpsychiatric illness in males as evidenced by higher mortality rates covers up the psychiatric disorders? In any event, we have here an epidemiologic finding which gives us some lead for further investigations into etiology.

The increasing rate of psychoses with age is a reflection, first of the fact that a large proportion of the psychotics do not improve with time and that the cohort of psychotics is constantly being supplemented by new cases, the rate of addition rising to the highest point in old age. The low prevalence of psychoneuroses in the age group under 15 is probably partially a reflection of the fact that psychologic difficulties in children are largely manifested or reported as behavior disorders, rather than neuroses. The rather surprising finding

that there is no difference in prevalence in the ages over 15 as far as neuroses are concerned is difficult to explain, even on hypothetical grounds. One might say that once a neurotic always a neurotic, and that they die at the same rate as nonneurotics. This only points up the need for studies of the life history of neurosis. The rather bizarre distribution of psychophysiologic disorders confined to young and middle-aged adults, with accent on the former, certainly warrants further investigation. Again, the lack of cases in the age group under 15 might be explained on the same grounds as that offered for the neuroses. In any event, current medical thought which does not expect many such cases in young people may result in underreporting, or it may very well be that these disorders are the result of long and continuous exposure to stress. The decrease in rate of psychophysiologic disorders after the age of 34 with apparent disappearance after 65 may be due to either burning out of cases, reduction by death, or covering up by more serious nonpsychiatric disease.

Undoubtedly, many other explanations could be offered as acceptable as the above, or even more so, but these were advanced merely as examples of the large number of hypotheses which immediately offer themselves for testing, and as evidence of the long road still to be traveled toward the goal of the knowledge of etiology, cure, and prevention of one of mankind's heaviest burdens.

International Cripple Lasker Award

The 1957 Albert Lasker Awards of the International Society for the Welfare of Cripples were presented to an American physician-editor, a Finnish surgeon, and an international veterans' group at the Seventh World Congress of the Society in London on July 24. The awards are given triennially for outstanding achievement in the development of services for the physically disabled.

Howard A. Rusk, M.D., chairman, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York, and associate editor of The New York Times, who organized the rehabilitation program for disabled American airmen during World War II, was cited as a "laborer and pioneer in the service of the physically afflicted, consultant, eloquent spokesman, and distinguished rehabilitation mentor to the entire world."

Professor Fabian W. G. Langenskiold, president of the council, the Invalid Foundation, Helsingfors, Finland, which is one of the world's leading rehabilitation institutes, was cited as a "distinguished surgeon, educator and prime mover in the cause of the disabled."

The World Veterans Federation, with headquarters in Paris, was hailed for its "technical assistance and positive support to the planning and development of modern rehabilitation services in more than 30 nations."

Disaster Housing and Rehabilitation

CHESTER F. PAGE

There is a great deal of information about principles and practices that now apply to housing rehabilitation in the wake of a disaster. Because this information may some day be badly needed and needed in a hurry it would seem wise to file it or identify it in some way so that it can be found without delay.

Dr. Foster Rhea Dulles, professor of American History at Ohio State University, in "The American Red Cross: A History,"[1] makes this statement: "The first experience of the American Red Cross in relief work was on the occasion of the Michigan forest fires in 1881. . . . Largely through the generosity of the local societies . . . , relief funds were raised and such supplies as food, clothing, and medicine, as well as lumber for rebuilding burned-out homes, were accumulated in large quantities. . . . Miss Barton . . . (supervised) the distribution of these stores, and with the help of volunteer assistants, provided aid to destitute families which was valued at some $80,000.

"In this first operation, the Red Cross demonstrated . . . an understanding of the needs of victims . . . , which was to point the way to a continuing policy in disaster relief. The Red Cross was not thinking in terms of charity, but of the rehabilitation of people unable, for the time being, to help themselves and asking no more than temporary assistance in restoring their normal way of life."

This was 75 years ago, and 19 years before the Congress made the Red Cross the agent of the federal government for the relief of suffering in natural disaster. From this beginning—"lumber for rebuilding burned-out homes"—not a charity but "the rehabilitation of people unable for the time being to help themselves"—has evolved the present disaster building and repair program of the American Red Cross.

During this 75 years, the Red Cross has participated in 6,000 domestic disasters and expended $233,000,000. The American people finance the cost through voluntary contributions. Funds granted to a disaster victim are an outright gift—a gift for disaster family rehabilitation from the American people, through their Red Cross.

Red Cross repair or rebuilding assistance is limited to the home owned and occupied by the family. Investment property is not included. The renter who is unhoused by disaster must look to his landlord to make repairs, or find other rental property in the community. Seldom does the renter remain unhoused. When there is a housing shortage the demand for rental property can be met by new housing privately financed or by public housing. For several years the federal government has assumed the responsibility for interim housing. Federal funds for the purpose are available under Public Law 875, administered by the Federal Civil Defense Agency. The need for interim housing is likely to continue for some time after disaster, therefore the supervision and management of a housing authority is required.

In the early development of the Red Cross program, housing rehabilitation was not necessarily a major item among the many categories of assistance. Building materials and hardware, donated by manufacturers, were distributed. Tools were loaned to families to enable them,

with the volunteer help of neighbors, to repair damaged homes or to build new ones.

Standards of housing, 75 (or even 25) years ago, were far different than they are today. Arno H. Johnson, vice-president and director of research of the J. Walter Thompson Company, makes this statement in "The Spectator": [2]

"An important factor affecting our standard of living is that over . . . two-thirds of the homes are over 20 years old. They were built at a time when the major part of our population had incomes that were hardly enough to buy the bare necessities of living. . . . the ideas of living conditions, furniture, and furnishings were quite different then than now. In 1930 there were only nine and a half million adults with a four year high school education. In 1932 the 21 million passenger cars represented less than half the present numbers.

"Major changes in purchasing power, education, and ownership of automobiles and appliances have taken place . . . since 1940. These rapid changes superimposed on housing conditions of a past generation are creating hidden pressures. While new construction in the last few years has been providing approximately one million new homes annually this has just barely taken care of the growth in the number of families. There is a huge and really unmeasurable opportunity beyond the providing of new homes for new families and that is in the replacing or remodeling, and refurnishing of obsolete homes to bring the whole housing standards more in line with the present modern levels of living and education, and in line with the changed distribution of families by income groups."

Mr. Johnson also pointed out that there were an estimated 48,300,000 dwelling units in the United States as of 1953. At that time, 50 per cent were over 30 years old, another 17 per cent were from 20 to 30 years old. The remaining 33 per cent were less than 20 years old. Between 1900 and 1940, there was very little change in the percentage of home ownership. In 1900, 40 per cent owned homes. By 1940 the percentage of home owners in the population had reached 43 per cent, an increase of only 3 per cent. Today over 60 per cent of the families live in homes which they own or are acquiring.

In 1941 the median income was $1,500. Today it is over $3,200. However, we cannot conclude that increased income is the cause of the increase in home ownership. Of the group with an income under $1,000, 46 per cent own their homes, while only 68 per cent of the income group over $7,500 own their homes.

These changing economic and social conditions in the United States have directly influenced the evolution of the practices and policies of the Red Cross. Our policies are not static and are sufficiently flexible to handle new situations. The needs of disaster victims are met in accordance with varying family, community, and regional standards of living. Today, the building or repair of homes has become the largest single category of Red Cross disaster relief. For example, during the six calendar years from 1950 to 1955, Red Cross assisted 147,532 families, at a cost of $57,881,526. Of these, 36,135 families were given assistance in building and repair at a cost of $28,981,240. In other words, 24.5 per cent of the families assisted needed help in housing rehabilitation, amounting to half the total relief expenditure. The other half

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was spent for the purchase of household furnishings; food, clothing, and maintenance; medical and nursing care; occupational equipment; and the rehabilitation of small businesses and farms. Household furnishings is the second largest category of expenditure after building and repair.

The object of Red Cross assistance is to help restore the capacity of the disaster family to reach and maintain its predisaster standard of living. This means that the family and a Red Cross disaster worker must determine through joint planning what the family needs from Red Cross. As a part of this process a damaged home must be inspected by a person qualified to determine what repairs are necessary and estimate the cost. If the building cannot be repaired it has to be torn down and rebuilt. If the building is destroyed, then the cost to rebuild must be estimated.

Predisaster, nonconforming conditions must be considered where modern codes require conformance as a condition of repair or rebuilding. This may involve the replacement of cesspools with septic tanks, privies with toilets connected to sewers or septic tanks, reroughing of old plumbing. Code, or accepted practice, for venting and elimination of fire hazards is observed when replacing heating equipment. The same is true for electrical installations, and general specifications for structural safety. What is required by code and the enforcing authority must be considered in making the estimate. In areas where there are no codes, the estimator is guided by his knowledge of generally accepted good practices.

Red Cross assistance is limited to disaster-caused needs. However, when we consider the age of many of the houses, it is apparent that we will find predisaster structural deterioration. While predisaster deterioration is not disaster-caused, it is often necessary to correct preexisting disrepair before the house can be made habitable.

It is not the purpose of Red Cross disaster rehabilitation to raise the standard of living. Conversely, the family must not be left with a lower standard than it maintained before the disaster. The net effect is that after the disaster the family may be better off, housing-wise, than it was before. If a home is destroyed, the question arises—what size and kind of house will be built to replace one constructed in 1900? In 1920? Or in 1935? The size must be sufficient to meet the needs of the family, but not larger than the one lost. Often a family is better off with a smaller and more modern house. After children are grown and have left the home, aging parents find the cost of upkeep, heating, and housekeeping of unused space a burden.

The Red Cross has pioneered, as have all social welfare organizations administering a program in a rapidly changing social and economic era. The Red Cross has periodically reevaluated operating policy and practices to keep abreast of changing concepts and values in the national standard of living. Only a few years ago Red Cross replaced electric refrigerators with ice boxes. At that time the ice box was standard home equipment and an electric refrigerator a luxury: at least, that was the public concept. As concepts changed, so did Red Cross. For several years we have been replacing electric refrigerators with new ones.

Today, the garbage grinder in the kitchen sink may be considered a luxury. Yet, a few communities already require their installation. Will they become as commonplace as the electric refrigerator? Perhaps changing concepts will someday put the garbage pail on the dump along with the old fashioned ice box.

Keeping pace with an increasing population, a growing number of people

have been assisted each year. The changing concepts and increase in the cost of living is reflected in the high cost of Red Cross disaster rehabilitation. Establishing standards for guidance of staff presents problems. An effort made some years ago to spell out in detail what could, and what could not, be done in housing did not prove satisfactory. Minimum standards tended to be applied as the maximum. Red Cross then moved in the direction of a "flexible need" policy. In the field of housing rehabilitation, we are following along lines which, in many respects, parallel "The Standards for Healthful Housing" of the American Public Health Association.

The Red Cross building adviser acts as a consultant to the disaster worker who is planning directly with the family. When all factors have been weighed, including the cost of repair or rebuilding, the family and the disaster worker can see the extent of the family problem. When the family and the disaster worker have determined all the disaster-caused needs, and what the family can do for itself, the worker makes a recommendation for an award in the amount of assistance needed from the Red Cross. Administrative reviews are provided for the approval of this award. In addition, community approval is obtained. In each disaster a Citizens Advisory Committee is selected. Its members are chosen from the clergy, labor and financial organizations, professions, civic clubs, schools, etc., representing a cross-section of the community. This Citizens Advisory Committee shares financial authority with the Red Cross staff. Within the limits of Red Cross policy it is the function of this committee to see that each award meets the needs of the family in accordance with community standards.

When the award has been approved it must be disbursed. If the family is providing its own labor for repairs or rebuilding, orders are issued for materials. If labor costs are included in the award, the family engages a contractor of its own choosing. The building adviser draws up a contract specifying the work to be done. When the work is completed and accepted by the family, Red Cross inspects it before paying the contractor.

Following the 1906 San Francisco earthquake it took the Red Cross nearly two years to complete its work. Today, fifty years later, comparable jobs are finished in three or four months. Speed is important in reestablishing family and community life. Field practices have been developed to move as quickly as possible to the determination of family need, and to reconstruction.

Sound administrative practice, however, is not enough. Qualified staff, technically trained in the various facets of the rehabilitation process, must be sent to the disaster area to complete the work as quickly as possible. Red Cross maintains only a small permanent paid disaster staff. In times of major disaster, this staff is augmented by personnel from other services in Red Cross, local chapters, and a reserve outside the organization. Within a few hours after last year's Eastern States floods the Red Cross began moving staff from all over the United States toward the disaster area. Some 800 persons were eventually employed. After the Western States floods last Christmas, some 500 workers were similarly assigned.

Included in this staff were persons technically qualified by experience or training to inspect damaged buildings, estimate the cost of repairs, and draft and negotiate contracts. They inspected completed work for compliance with the specifications and gave approval for payment. They were qualified to give consultation and advice to the disaster workers on all matters relating to housing rehabilitation. It is a continuing task to maintain a national reserve of

building advisers to staff major national disasters as great as the two floods of 1955. Planning, recruiting, and training goes on constantly.

Three years ago, the Public Health Service and the American Red Cross recognized that they had mutual interest in reserve staffs. The PHS was building an inactive reserve to meet civil defense requirements. In it were sanitary engineers and related professional personnel who, with Red Cross training and disaster field experience, would be capable of high caliber performance on disaster operations.

In July, 1955, under an agreement between the two agencies, the PHS called 29 inactive reserve officers to active duty and assigned them to Red Cross for training. This group assembled at the University of Illinois for a ten-day training course, intended as the first phase of a two-part program. The second phase was to come later—a week or two on a small disaster to gain field experience. Little did any of us realize, on the last day at the university, that within the next 14 days, 17 members of this class would be recalled to active duty. Seventeen of this class volunteered for a 30-day tour with Red Cross in the Eastern States floods of August, 1955. Four months later five more PHS inactive reserve officers were assigned in the Western States floods.

Recruitment for this program is through the PHS. The cost of training, including transportation and personal maintenance of the reserve officer, is paid by Red Cross. On disaster assignments, expenses and salary are paid by Red Cross. In addition, as an officer in active duty status, he receives all of the benefits available to him through the Service.

Last year's experience proved that the program is worth while. Two classes were held in September of this year, one at the Sanitary Engineering Training Center in Cincinnati, the second in San Francisco. Thirty-eight men attended these classes, which brings to 67 the number of reserve officers trained for future duty in time of major natural disaster. This peacetime experience will be helpful if they ever have to assume responsibilities in a civil defense emergency.

The development of the plan to train Public Health Reserve Officers in Red Cross disaster housing rehabilitation has, of necessity, involved some experimentation. With three classes and two major field operations behind us, we are now in a position to shake the plan down. On the basis of our experience and the advice of the reserve officers who have taken these courses it is my recommendation that at least one two-week class for new reserves from the Public Health Service be held each year. This would be in addition to the regular training of reserves recruited from the building industry.

Disaster brings to light many predisaster social and economic problems in a community. The blighted housing area is an example. Often, disaster focuses public attention on the unsatisfactory housing of some of its citizens. These conditions may have existed for years, while the community ignored them, or failed to develop sufficient desire to do anything about remedying the situation. The emotional impact of disaster usually generates a temporary urge to correct all past neglect in one fell swoop. Public officials, under pressure from the community, may propose plans that are later dropped when it is discovered that slum clearance or urban renewal is a complex and costly process.

Urban renewal and the upgrading of substandard housing require long-term planning, proper legislation, adequate financing, and a sound administrative organization within the local governmental structure. There must also be continuing public support and participation. These are not situations that can

be dealt with by hasty action at the time of disaster.

How shall a given area be treated? Has it passed beyond redemption? Can years of obsolescence be reversed? Can the area be restored for healthful habitation, or should the land be cleared? What new use should be made of the land? What vitiating influences contributing to residential deterioration must be effectively disposed of? The answers to these questions are obtained through housing appraisal and analysis by professional staff in health departments, housing agencies, and on planning and zoning boards. Plans may ultimately require the participation of the federal government. If the area is to be razed, arrangements must be made to rehouse the occupants elsewhere. If all the property in the area cannot be acquired by negotiation, there must be legislation for the condemnations necessary to the success of the project.

It has been my observation that when facilities for dealing with all phases of the problem in a community do not exist, improvised plans for urban renewal have not proved satisfactory. Red Cross rehabilitation service is a short-term family program. We deal with each family on an individual basis. Our object is to meet immediate needs and assist the family to regain its former standard of living. We do not deal with predisaster social problems, whether domestic, physical, housing, or economic. We deal with disaster-caused problems as we are directed to do under Public Law 4 of 1905. Predisaster conditions are the responsibility of the community agencies which provide family welfare services, and of local health departments and planning boards.

On several occasions in the past we have cooperated with communities which hastily contrived redevelopment programs following disasters. Generally, these cases involved substandard housing in areas subject to frequent flooding. The threat of reflooding, rather than social considerations related to poor housing probably provided the community motivation. In no instance was the desired result accomplished. The reasons for failure can be briefly stated.

There was no legislation under which title to land could be acquired by a legal authority. Participation was on a voluntary basis and only people who would agree to move were benefited. The rest stayed behind and remained a problem to the community. Citizens and officials lacked understanding of the real problems involved and failed to develop lasting convictions about how to deal with them. Memory of disaster fades rapidly from the minds of men. Even in a case where Red Cross participation was contingent upon the transfer to the city of titles in the substandard area, it, in time, became repopulated. Some families who had been provided new homes elsewhere eventually returned to the old environment. Plans to deal with such conditions must have teeth in them. There must be a local agency within government to follow through.

Red Cross will cooperate to the extent of its normal rehabilitation costs in any workable plan that does not unduly delay the restoration of normal family life of the disaster victim, and affords real assurance of the attainment of successful and permanent urban renewal. Following the New England floods in August of last year, some communities talked of the redevelopment of certain devastated areas. Family awards were established but not disbursed until it was determined that the redevelopment plans were not going to materialize.

Disaster offers an opportunity and a challenge to you who are professionally engaged in the attainment of healthful housing. Disaster opens the minds of the public to the need for better housing. Disaster offers the opportunity to interest local officials in urban renewal, surveys, and planning. Disaster can

make money available for planning to get the work started.

Now I quote from a paper read for the late Dr. Joseph W. Mountin before the Experts Committee on Public Health Administration of the World Health Organization.[3] He was referring to disease, poverty, and ignorance on a world-wide basis, but the basic principals he expressed can be applied to the problem of substandard housing in the United States. Dr. Mountin said: "We need, of course, the basic ingredients of men, money, and material. We need the incentive to progress that comes from popular understanding and participation. We need scientific knowledge, careful joint thinking and planning, effective organization, and high-caliber performance. Above all, we need soundly conceived health programs, suited to the problem, the time, and the place, and designed to move logically to attainable goals."

Dr. Mountin then discussed some of the factors affecting health and approach to the problems. He made this observation: "Many individuals and groups can contribute toward solving health problems, which means that sound planning must make a place for these contributions. Provision must be made within the organizations having health responsibilities—both governmental and nongovernmental—for an interchange of ideas and understandings and for working with numerous groups and agencies. Because of the complexity and the variety of needs, we must often go far outside the traditional public health setting to make effective progress."

Then Dr. Mountin turned to the necessity for public support. "Public understanding and support can also be made a part of planning. Public health programs should be so organized that the people who have the problems are given an opportunity to plan and contribute to the solution. Too often there is little participation by the individual, who passively receives the services. In a sense, health officials should aim to make every citizen a public health worker, at least in his own behalf. This can be done, in part, by mass education combined with proper devices for motivation. In part, however, it depends on how soundly our programs are planned and how logically our organization is developed. I think there is no question but that people will support a program they can understand and that is meeting their real needs."

The policies of Red Cross in giving disaster assistance are simple and humane. During the emergency period anyone in the affected area may turn to Red Cross for shelter, food, and emergency medical and nursing care. Families are helped back to their feet after the emergency according to their individual needs and resources; and Red Cross aid is given as a gift—not a loan. During the 1955 fiscal year Red Cross extended disaster assistance to hundreds of communities in 44 states. Over $31,000,000 was expended to help 35,600 families. Red Cross disaster relief is a program which meets a real need in a way the public understands. The American people will continue to support it, because it provides a channel through which people help people.

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How Do Nurses Spend Their Time in Schools?

GRACE M. McFADDEN, R.N.; HELEN A. MILLER, R.N.; MARGUERITE P. CHAPMAN; and FLORENCE R. RICH

The activities of public health nurses assigned to city schools were recorded to find out how much of their day's work was devoted to non-nursing services that lay assistants might do just as well. The ways the successful survey was planned and carried out are recounted here.

This study was initiated under the pressure of necessity. Nursing time has become scarcer and scarcer as the years go on. There are twin factors that make for this condition, one the expansion of public health service, the other, the shortage of trained personnel. One of the purposes of this study was to determine how seriously the burden of clerical and other routine details affect the way nurses work in schools and, if possible, to suggest corrective measures.

It was assumed that a significant amount of the nurses' time is spent in routines which could be given to ancillary help. It was also the hypothesis that if nurses could be relieved of these non-nursing activities their time could be more effectively used in work which they alone can do. This should lead to better public health nursing service for school children.

There has been a change in emphasis in the school health services in New York City during the past 10 years. While the activities performed in schools have been part of the program since 1940, the scope in which they are performed has broadened considerably. There are more schools, more pupils, and the physical examinations extend to cover more grades and more children. The school system itself is more complex. Teachers, health counselors, guidance counselors, social workers, and others who work with children are vitally interested in anything nurses can do to help them. On the other hand, the amount of available nursing time has decreased. However, during the school year 1954–1955 the use of ancillary help in schools was begun, by the assignment of public health assistants who perform work which is clerical and semitechnical in nature.

In New York City the Department of Health provides the school health services to over one million children in the public and parochial schools. These services form a major part of the work of the department's public health nurses. Children of school age receive 58 per cent of the total nursing time. In this study only 40 per cent of the total time was considered, since 18 per cent is allocated to service outside of the school building.

The existence of a shortage of nursing time was a problem, but it at least was a clear problem. What was not so im-

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This paper was presented before a Joint Session of the American School Health Association and the Maternal and Child Health and School Health Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 14, 1956.

mediately clear was how and where to begin. Under the sponsorship of the director of the Bureau of Public Health Nursing a committee was formed. The committee membership consisted of a district health officer, supervising school physician, district supervising public health nurse, supervising public health nurse, and a public health nurse. The two nursing consultants for schools were also on the committee. The directors of the Bureaus of School Health and Public Health Nursing, their assistants, one senior statistician and a statistician served as resource and consultant staff to the committee.

A review of the literature revealed that everyone agreed there was great need for the type of information wanted, but there was little guidance in ways to obtain it. A number of methods were tried. One, a narrative report of nursing activities kept by the public health nurse, was found to be inaccurate and too time-consuming. A large group of nurses could not be expected to keep accurate accounts of their activities. It was known from experience that such technics as shadowing would not give a true picture. Also, the personnel and the time for this type of observation were not available.

After consideration by the committee it was decided that a time study conducted along the lines of one reported by the Yale Public Health Personnel Research Project be done in an attempt to measure the kinds of activities carried on by public health nurses in the school health program and the amount of nursing time involved.[1]

The measuring device this technic employs is a time log. The Yale time log is accompanied by an activity list of 21 items, with definitions and examples. Because, for the purpose of this study, these activities were too broad, the time log was amended and a new activity list was developed. This included, as nearly as possible, every kind of work the nurse might do in school. The activities were broken down into types of activity which might require professional and nonprofessional abilities, particularly in recording. Provision was also made for recording activities which are not outlined in any manual of procedures but which are part of the nurses' work in establishing and maintaining good working relationships.

The factors governing the selection of the school sample were the size of the school population and the number and type of schools in each district, in order that the group selected would be representative of the city's entire school system. Approximately 53 per cent of the sample schools were public elementary and about 11 per cent were public junior high schools, with the remaining 36 per cent falling into the parochial school group. This very closely approaches the distribution for the city as a whole and resulted in a selection of 115 schools from the 30 health districts in New York City, or approximately a 12 per cent sample. These schools were also grouped into five registration categories, ranging from schools with less than 500 pupils to those having more than 2,000 pupils.

The time for the study was placed in February, March, and April, 1955, when most school days are what is considered to be normal. That is to say, there were no special projects going on, no extra work involving new admissions, and no gaps created by holidays.

The next step was to enlist the cooperation of the public health nurses whose services were sought. This was done at a series of meetings, held in each borough, at which the goal of the study was explained in detail. Since the pressure on the public health nurses was largely responsible for the inauguration of this study, their cooperation was easily enlisted. After these meetings a full-scale test of the study was run. Each of the participating

public health nurses was given a time log which she was to fill out and return. Any questions or suggestions that occurred to the nurses were to be submitted. None was received. However, it is worthy of note that this was not due to lack of interest, because it was not necessary to drop any school from the study. The pretest indicated that no changes in the procedure were needed.

It is recognized that this study is only a small segment of a very large area in need of evaluation. However, the results may be useful as a guide in the formation of policy. The statistical analyses indicate that the preliminary estimate of the problem was correct. The burden of an expanding public health program, coupled with a shrinkage in the size of the staff, makes it imperative to explore critically what the public health nurse can and should be doing in any program in order to make better use of her skills.

One point is clear. No expansion of the school health program should be undertaken until it is shown that an adequate staff has been provided. There are three ways in which this can be done. First, the assignment of more trained public health nurses to the school health program. The answer to that solution is well known; the trained personnel is simply not available. Second, the elimination of the less essential services, if any, and third, the creation of a group of ancillary workers to perform those tasks that can be properly assigned to them.

When the time logs were returned the activities were classified. Thirteen of them fell into what were characterized as nursing activities and four into nonnursing ones that could be assigned to ancillary help. One classification contained both elements; three—fire drill, lunch, and personal—fell into none of the above. These broad categories contained 56 specified items.

For all schools in the study the nurses spent about 73 per cent of their time in nursing activities and almost 25 per cent in non-nursing ones. In the small schools with registration of under 500 pupils less time went into the professional areas and more time in the nonprofessional ones, while the opposite was true for the largest schools with registration of over 2,000 pupils. However, these differences showed a very small range in the five registration groups (Table 1).

It was interesting to note the percentage of time spent in the various items listed in the nursing activities, according to the size of the school. As the registration increased more nursing time was spent in such routines as daily inspections and first aid while less time went into conferences and follow-up. When the time spent in daily inspections and the time spent in first aid were lumped together, the percentage in the largest schools exceeded that of the smallest schools by nearly 15 points. On the other hand, when the time spent in the various conferences and follow-up activities was grouped, then the reverse was true. The percentage of time used in conferences and follow-up activities in the smallest schools exceeded that used in the largest schools by more than 12 points.

This pattern of time distribution was also true when the percentage of nursing time devoted to case finding and follow-up was examined. Again, in the smallest schools about 30 per cent was given to case finding and 33 per cent in follow-up with a gradual decrease, as the size of the school increased, until in the largest schools the percentage dropped to about 26 per cent for both. These case-finding, conferences, and follow-up activities are considered the most important public health nursing functions in the school.

In this study the largest schools were mainly junior high schools which are departmentalized. Contact with teachers

Table 1—Percentage of Public Health Nurse Time Spent in Each Activity by Size of School

Activities	All Schools	Registration of Schools				
		Under 500	500–999	1,000–1,499	1,500–1,999	Over 2,000
A. Nursing						
1. Daily Inspections	9.8	3.7	8.4	10.3	12.3	12.4
2. First Aid Emergency Referrals	3.8	1.3	2.9	3.7	4.4	7.4
3. Organization of Work—M.D. Session	2.1	2.2	2.5	1.6	2.5	2.1
6. Assisting at M.D. Session	13.2	13.8	13.2	12.8	12.6	15.2
8. Preparation for Teacher-Nurse Conference	2.5	2.4	2.2	2.9	2.5	1.8
9. Teacher-Nurse Conference	7.1	8.0	7.4	7.1	7.2	5.5
10. Follow-Up Teacher-Nurse Conference	2.7	3.3	2.9	3.1	2.0	1.8
11. Nurse Follow-Up	12.9	12.3	13.6	13.1	13.6	8.3
12. Parent-Nurse Conference	7.8	8.4	8.4	7.6	6.4	9.2
13. Conferences Relating to School Health Program	7.3	10.2	8.1	7.2	5.8	5.6
14. Conferences with Outside Agencies	1.8	2.2	2.2	1.6	0.7	2.4
15. Group Conferences	0.4	0.6	0.3	0.4	0.5	0.5
16. Other Conferences	1.5	2.1	1.6	1.2	1.3	2.5
Total Nursing Activities	72.9	70.5	73.7	72.6	71.8	74.7
B. Non-Nursing						
4. Preparation for M.D. Session	2.6	4.1	2.3	2.4	2.7	2.7
5. Setting Up for M.D. Session	1.5	1.3	1.6	1.6	1.3	1.6
17. Clerical and Related Work	18.9	18.1	19.0	19.0	19.6	17.6
18. Counting Pending Case Load	1.6	3.4	1.4	1.7	1.3	1.1
Total Non-Nursing Activities	24.6	26.9	24.3	24.7	24.9	23.2
C. Nursing and Non-Nursing						
7. Scheduling Teacher-Nurse Conference	0.7	0.4	0.5	0.7	0.9	0.8
D. Other						
19. Personal	1.8	2.2	1.4	1.9	2.3	1.3
20. Fire Drill and Civil Defense Drill	0.0	–	0.1	0.1	0.1	–

and pupils is not as easy to establish as it is in elementary schools. However, in the smallest schools nurses averaged less than one full day a week. This raises the interesting question of whether the nurses who are so limited in time are more aware of ways to share responsibilities with teachers. Have they developed particular technics and approaches, so that teachers are more willing and able to accept first aid and daily inspections, thus freeing the nurses for the type of work which should have a high priority rank in nursing service? (In New York City all teachers are required to complete a standard course in first aid.)

With very few exceptions it took nurses about the same number of minutes to perform an activity at any time it was done, regardless of the size of school (Table 2). This information could be helpful in program planning. Again, questions arise. For example, it was found that a nurse saw about 10 children a day for follow-up and she spent about five minutes with each child. In this agency the Manual of School Procedures defines follow-up as including a discussion of a child's health needs, health guidance, referral for care, and related instructions. However,

other directives for tabulating daily activities, required of all nurses, define follow-up as children who have been requested by the nurse to see her in the medical room. It may be then, that what is a clerical routine of getting a medical report returned to the nurse is being construed as a nursing follow-up.

Table 2 illustrates the average number of minutes the public health nurse spent in the performance of any one of the categories of activities which are descriptive of the work the nurse could be doing in school at any time. It should be noted that the public health nurse would not be doing all of these activities in any one day. She may do some part of all of them, or she may do any combination of several of these activities. Due to the fact that it would be nearly impossible to decide upon the activities for a typical day's work, the investigators felt that no attempt should be made to approach the analysis of the data from this study on the basis of a single day's work. Since normal school hours are from 9 a.m. to 3 p.m., it is rare that a nurse would spend more than five hours on any day in school. There are instances when a nurse may spend six

Table 2—Average Number of Minutes Used by Public Health Nurses in the Performance of Each Activity by Size of School

Activity	Minutes Used in Each Activity According to Registration of Schools					
	All Schools	Under 500	500–999	1,000–1,499	1,500–1,999	Over 2,000
A. Nursing Activities						
1. Daily Inspections	30	14	27	31	35	38
2. First Aid and Emergency Referral	22	15	21	20	24	27
3. Organization of Work for M.D.	29	27	30	28	33	26
6. Assisting at M.D. Session	111	126	116	107	113	105
8. Organization of Work Teacher-Nurse Conference	24	18	23	26	23	24
9. Teacher-Nurse Conference	65	63	66	65	67	58
10. Follow-Up of Teacher-Nurse Conference	29	28	30	31	26	24
11. Nurse Follow-Up	49	41	48	51	52	42
12. Parent-Nurse Conference	32	34	32	33	29	36
13. Conference Relating to School Health Program	27	29	26	26	27	25
14. Conference with Outside Agencies	18	19	18	18	11	20
15. Group Conferences	31	38	25	34	27	43
16. Other Conferences	19	20	19	17	17	23
B. Non-Nursing Activities						
4. Preparation for M.D. Session	31	37	35	29	33	25
5. Setting Up M.D. Session	17	15	17	16	16	17
17. Clerical and Related Work	54	47	53	55	56	53
18. Counting Pending File	28	20	25	32	42	32
C. Nursing and Non-Nursing						
7. Scheduling Teacher-Nurse Conference	14	14	12	14	14	20
D. Other						
19. Personal	13	15	12	13	14	15
20. Fire Drill and Air Raid	11	–	11	8	20	–
21. Lunch	60	60	60	60	60	60
22. Unknown	25	26	25	25	25	23

to seven hours in school, but this is due to unusual factors, such as double or triple sessions because of overcrowding, and is, therefore, not representative of a normal day's work in school.

When nurses participated in individual or group conferences related to pupils' health problems they spent from 11 to 43 minutes in any of these activities. But these were not occurring daily. Actually these three areas ranked lowest in the proportion of time spent in nursing activities. Compare these figures to clerical and related work which occurred daily and took from 47 to 56 minutes every day the nurse was in school. Although this item ranked third highest in the average number of minutes needed to perform it, when the logs were compiled it consumed the largest amount of time for all schools during the study. With the addition of the other non-nursing items the total was even greater. Yet it is constantly repeated that the school nurse is a member of a team. She is expected to work in a multidiscipline situation, in which she will use her professional knowledge and skills in helping solve the health problems of school children.

Public health assistants have only recently been used in New York City schools. There are still some schools that have never had this type of ancillary help. Their assignment may be on a regularly scheduled basis, whether it is once a week, twice a month, or more frequently. In this case the public health nurse knows she can plan on ancillary help at a specific time and can organize her work accordingly. On the other hand, an occasionally assigned public health assistant does not have a routine schedule of visits to school. However, during this study, she had been in school at least once. The nurse may or may not have known she was coming.

It was found that whenever ancillary help was available the nurses were able to devote more time to nursing activities. This was most noticeable in the high registration groups, where public health assistants were present in ratios of more than 20 per cent of the nurses' time. In the smaller schools they were there only 8 to 11 per cent of the nurses' time. When ancillary help was given on a regularly planned basis there was a marked increase in the proportion of time the nurses spent in nursing activities. However, in those schools which had public health assistants on an occasional basis, more of the nurses' time was given to non-nursing activities than in those schools which never had ancillary help.

The question still to be answered is why, when public health assistants were assigned on either basis, did the nurses still spend from 21 to 28 per cent of their time in non-nursing activities? As a result of these findings several recommendations were made. Those which might be of general interest include:

¶ A qualitative review of all nursing activities in school to determine whether more might be shared with other school personnel or assigned to ancillary help. This should lead to a more discriminating use of nursing time for work which unquestionably should be done by the nurse. In this review it should also be considered whether the time available is sufficient to meet the objectives of the school health program.

¶ Ancillary help should be assigned on a scheduled basis and at a ratio of at least 20 per cent of the nursing time.

¶ There is an apparent need for more orientation for nurses working with ancillary help. Emphasis should be placed on the public health nurse acting as a team leader, delegating work but maintaining over-all responsibility. In this orientation consideration must be given to factors which influence the attitudes of nurses, doctors, teachers, and others.

¶ All manuals, directives, and other

written materials should be reviewed to eliminate conflict or confusion in the interpretation of various procedures. This should lead to a common understanding of the ways in which the staff should be functioning.

Areas suggested for further investigation include:

¶ A study of activities relating to case-finding and follow-up procedures to evaluate the effectiveness of the present methods and approach. Here some questions have been asked which specifically relate to this school system but there are also some questions that are of concern in any program: How long does it take to secure adequate supervision for a health problem and which activities are most successful in obtaining this follow up? Once a health problem has been placed under medical supervision, how much further follow-up is necessary? What is the optimum proportion of nursing time needed for case finding and follow-up in order to meet the objectives of the school health program?

¶ A study of activities of ancillary help to determine how their time may be used most effectively.

¶ A study to determine what knowledge and skills public health nurses need in order to function most effectively in a school health program.

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Third Crumbine Awards Competition

The Public Health Committee of the Paper Cup and Container Institute has announced the opening of the 1958 Fourth Annual Samuel J. Crumbine Award Competition for programs conducted in 1957. The two separate awards are for "outstanding achievement in the development of eating and drinking sanitation" and "in the development of a comprehensive program of environmental sanitation by a local health department." Requirements are the same as in previous years, and no department that has won an award may compete for the same award again. Previous winners may, however, try for the award which they have not won. All entries must be completed by March 1, 1958.

Entry blanks may be obtained from Crumbine Awards Jury, Room 1025, 250 Park Avenue, New York 17, N. Y.

Application of Control Methods to Mental Illness

ERNEST M. GRUENBERG, M.D., Dr.P.H., F.A.P.H.A.

The point that this contribution to the symposium on, "The Public Health Approach to Mental Health and Illness," drives home is that we must learn somehow to measure the effect—in the areas of mental health—that many ordinary administrative procedures have upon the prevention or amelioration of mental illnesses. At present we simply do not know.

What can be done to control mental disorders among the people of a community?

The answer to this question emerges from an estimate of our knowledge regarding the etiology and epidemiology of various mental disorders. The unhappy situation regarding our ignorance about the schizophrenias outlined by Dr. Hoch [1] should not discourage us unduly. Public health has scored victories in the past on the basis of simple empirical procedures, identifying a key link in the natural history of a disease or an observation regarding the association of a disease with a particular modifiable feature of the environment. We cannot do all that we would like to do, but we should, at least, make certain that we are doing what we know how to do to reduce the burden of mental disorders.

The public health approach to mental disorders is the same as the public health approach to any other group of illnesses: first, prevent what we know how to prevent; second, terminate or mitigate illnesses that we know how to terminate or mitigate; third, reduce the disabilities suffered as a result of illness where we know how.

Although concern with mental health in a health department may be new, we should not assume that only new programs will affect the mental health of our communities. If our concern for mental health is new, we have probably been unaware of effects old programs have had on mental disorders. A review of our knowledge reveals that some well established public health programs have probably been yielding mental health dividends which we do not take into account when estimating their value. The absence of morbidity data as an index of program effectiveness keeps us from placing emphasis on activities in accordance with their mental health values.

In addition, some new programs, whether in health departments or in other community agencies, can be expected to have an effect. Community mental hygiene clinics, general hospital psychiatric units, mental health consultants to health departments, parent education programs, and other activities are frequently advocated as "answers" to the mental health problem which many recognize as one of the nation's leading public health problems. While each of these services has a value,[2] none of them alone, nor even all together, will produce a reduction in the size of the mental health problem in a community unless they devote themselves to activities that will actually improve the mental health of the people. An orientation regarding which activities will produce

this kind of effect is needed in order to allocate resources in the light of present knowledge.

Primary Prevention

The Public Health Agencies

Maternal and Child Health Services—Are we fully using present knowledge in attempting to reduce the number of children born with lifelong handicaps of brain functioning?

We have no clear evidence to this effect. Health departments measure the effectiveness of their maternal and child health programs with yardsticks not designed to rate success or failure in terms of chronic illness. If such scales were developed, would we feel so sure of the effectiveness of present programs? Declining maternal and infant death rates show that these programs have been "successful," but there is evidence that these savings in life have often been bought at the cost of increases in the numbers of blind, palsied, epileptic, and mentally deficient children. Death rates, which have ruled the roost for so long as the sole measure of the improvement of a community's health, are insufficient measures of today's public health programs.

These are costly and tragic penalties to pay, particularly when a great deal could be done to avoid these preventable mental illnesses. Thus a maternal and child health program should include preventive treatment for lues when it is present (how many cases of congenital syphilis were born? How many were truly not preventable?); for protection against the consequences of Rh incompatibility (how many cases of unanticipated erythroblastosis occurred?); for protection against rubella during pregnancy; and for the development of optimal nutrition in pregnant women. There is excellent evidence that these preventive measures will reduce the incidence of children born with damaged brains, damage which will show up as cerebral palsy, epilepsy, mental deficiency, and behavior disturbances.

Surely a nutrition program for mothers-to-be which concerns itself exclusively—or even mainly—with obesity indicates that the sponsoring health department is ill-informed on the relationship of maternal nutrition to the incidence of toxemia and between toxemias and mental deficiency, behavior disorders, and epilepsy,[3] quite apart from the actual nutritional status of the young women of its community.

No one would wish to see death rates rise again, but can we tell what we are doing, and whether we are doing enough, without better data on the morbidity we prevent? Evidence regarding the frequency with which children develop lifelong mental handicaps because of inadequacies of these programs should be cited here, but our mechanisms for keeping track of these forms of morbidity are too weak to provide reliable data on this question. The only way to know how many preventable cases of illness are occurring is to record them, report them, and count them, for our ability to develop control programs often depends upon the availability of knowledge regarding our failures to apply effective measures. Death certificates and even maternal death conferences, great as is their value for other purposes, are of no value here. We need morbidity data and we will have to develop such data. The national health survey program[4] will provide a welcome start in this direction, but it is obviously only a start. Health departments that think there is no need to

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strengthen their maternal and child health services so as to prevent a larger proportion of the cases of fetal infection with syphilis and rubella, of injury due to Rh incompatability, or of fetal malnutrition are probably whistling in the dark. If they take account of preventable cases of mental deficiency, cerebral palsy, epilepsy, and behavior disorders they will probably find that their programs need great intensification if they are to prevent preventable mental illness.

Control of Environmental Hazards—Iodine deficiency,[5] poisoning,[6] brain injuries,[7] and drug intoxication[8] all cause mental disorders. They are preventable. Their control is usually assigned to the division of environmental sanitation of our health departments. Are these divisions alert enough to prevent such preventable cases of mental disorder? Are they fully conscious of the consequences of the failure to put their knowledge and resources to work? It is hard to see how they could be, since there exists so little information on the incidence of mental disorders which could be reduced by intensifying the divisions' action in this area. Those with experience in transforming knowledge into community programs for the betterment of health will think of many ways of strengthening old and creating new programs so as to control preventable cases of mental disorder arising from inadequate community health protection. The hazards to fetal brain development created by radiation and food additives also need evaluation. Evidence on the consequences of failure to act is needed in order to create the concern and energy which will lead to action.

Nutrition — Poor nutrition during pregnancy is not the only kind of nutritional deficiency related to mental disorder. Delirium tremens and some confusional psychoses, particularly of the elderly, are other examples. Pellagra, now a rarity in our country, is another example. Nevertheless, there are states whose mental health consultants continue to ignore the small stream of pellagra psychoses which come to their mental hospitals. A mental health consultant who does not call attention to such an opportunity to prevent mental disorders is using a questionable concept of priorities, although there are good reasons to believe that these mental health consultants are worth having for the other contributions they make. While all health workers have a responsibility for contributing to the prevention of mental disorders, the mental health consultant should be especially alert to the action the health department could take, but is not now taking, to prevent mental disorders.

Alcoholism is a serious social and health problem. Sometimes great efforts are made to rehabilitate alcoholics or to prevent alcoholism. Despite the urgency of the problem, the sincerity of the workers in the field, and the credibility of some of their theories, it must be admitted that the campaign against alcoholism is an uphill fight with little assurance that the expended efforts will bear the hoped for fruit. However, were some of this energy devoted to maintaining the nutrition of alcoholics, it would appear that delirium tremens could be prevented.[9] This devastating syndrome, which causes such severe disability, is so readily preventable that it might be very profitable to focus effort upon this objective, even if the underlying alcoholism cannot be controlled.

Mental hospitals have long been reporting that many elderly psychotic persons are admitted in a poor nutritional state. They also report that many confusional states of mind disappear on a good diet with supplements.[10] Getting good nutrition to elderly people should be a challenge to the nutrition workers in our public health agencies, since it is

obviously much more than a health education problem. How can one overcome such problems as financing the older person's food budget, his limited energy and capacity for shopping? How to supply him with dentures comfortable enough to chew the needed yet expensive proteins? Food preparation and sometimes chewing itself taxes his energy. There is often loneliness at meal times, and since eating is a social activity, many people do not have an adequate appetite for food in the absence of social stimulation to eat. Obviously, a program for improving the nutrition of the elderly requires the combined efforts of many community agencies besides the health agencies. Even in the United States a community can expect to improve the mental health of its members by improving their nutrition, bettering its control of infectious diseases, and strengthening its environmental sanitation. Yet we have the highest per capita consumption of proteins, vitamins, and calories in the world—we are eating, so to speak, off the fat of the world.

These are the main activities of conventional health departments that can reduce the incidence of mental disorders. These are programs which already exist and which we know how to carry out. Yet they all present the same problem. Because their relationship to mental health is ignored, because their value in controlling preventable cases of mental disorder is not appraised, the result has been to undervalue the results of these activities. Attention to mental health responsibilities should lead to strengthening these activities. It will inevitably lead to developing better data on mental disorder so that eventually program planners will be able to assess a program, not merely in terms of deferred deaths or public popularity, but in terms of the amount of mental disorder prevented.

Welfare Departments and Social Agencies

"There is no substitute for family life." [11] Although this is one of the best established facts about personality development, it seems to be more fashionable today to pay attention to the possible consequences of unhealthy family situations. The result is that many children have no family life.* We are not preventing mental disorders if we let adoptable young children remain in nonfamily settings. Whether placement failures are due to administrative difficulties in locating homes, or the inability to persuade families to take in homeless children, or because of thoughtless legal or policy barriers, such failures should be considered missed opportunities to prevent mental disorders.

Deprivation symptoms can follow maternal illness or death, parental desertion or imprisonment. Opportunities for prevention occur when children lose their continual family associations because of broken homes. Can we say that our resources for maintaining family life for young children are in proportion to our resources for placing children in foster homes or institutions? Do we hospitalize young children, and their mothers, rather than bring medical, nursing, and housekeeping assistance to them in their homes? It would seem worth while for all public health, welfare and mental health departments to look into this question in their own communities. Very little information is available regarding the present state of affairs because current practices have not been examined thoroughly in the light of this knowledge. Conversations with various authorities in the child-rearing field leads

* For example, New York City is said to have a roster of 1,322 children awaiting long-term placement for whom no homes are available. Reported in "News," January, 1957, published by Citizens Committee for Children of New York City, Inc.

me to believe that there is no expert consensus regarding the causes of preventable failures to assure young children with a continuous family life experience. The only point which every single expert makes is that he knows the causes and what ought to be done about it. Unfortunately, what each expert knows is entirely different from what the other experts know. Under these conditions there is an obvious need to develop the epidemiology of familyless early childhood,[12] if such a term may be coined. Of course, it is important to keep in mind that, so far as we know, damage to personality development is as likely to follow too many family lives as none at all; that is, repeated placements in unstable foster homes need to be avoided as assiduously as no placement.

Secondary Prevention

Early Diagnosis and Effective Treatment

The disease experience of a population may be reduced both by lessening its incidence, by shortening its duration, or by preventing its progress. Secondary prevention by definitive treatment of identified cases has played an important role in improving the people's health with respect to diabetes, epilepsy, tuberculosis, syphilis, malaria, and other disorders. Which mental disorders today are subject to ready diagnosis and effective treatment, so that the progress of illness may be halted or its duration shortened? It would have been convenient for the purposes of this article to have been able to cite a recent authoritative review of the question. None has been found, however. The following not very authoritative list is given, not as a definite answer to the question, but as a prod to others, indicating what the author believes to be a minimum list from available evidence. Treatment known to reduce the duration or retard the progress of illness is available today for depressive states of a certain type and intensity regardless of the diagnosis, and for general paralysis, pellagra, toxic deliria, conversion hysteria, cretinism, and phenylpyruvic acid oligophrenia.

In order to provide for early diagnosis and treatment of these conditions it is necessary to supply case-finding procedures and arrange for definitive treatment. Yet no local mental health program is known to have done this. Agencies are not now organized to recognize and treat these conditions as a priority, for priorities in the use of diagnosis and treatment services are not in practice based on a list of disorders subject to secondary prevention. There is much public health experience to draw upon in organizing secondary prevention programs. Thus, providing readily available treatment is a first step. Getting the people in need of treatment to the treatment is a second. Other tried public health devices are campaigns to educate and alert physicians, public health nurses, pastors, and others likely to be turned to as a first resource when illness strikes. Could not such a secondary prevention program be applied to the mental health field? The answer appears to be that it will not unless those who operate treatment services can be induced to set up definitive treatment programs for those illnesses most subject to secondary prevention. Recently, a highly dramatic suggestion was made that ferric chloride be sprinkled on the diapers of newborn infants before they leave the hospital as a simple mass screening device for identifying the rare cases of congenital disorders of phenylpyruvic acid metabolism.* [13]

* The originator was not certain that the disorder is manifested that early and proposed the procedure only to oppose it on the grounds that this would increase the incidence of phenylpyruvic acid disorders in the next generation!

While some disorders can neither be prevented nor arrested by treatment, recurrent patterns of illness can be disrupted by treatment between episodes of illness. For example, there is considerable evidence (from some trials of uncertain conclusiveness) that electric shock treatments given monthly to remitted schizophrenics delay remissions.[14] This promising approach to secondary prevention deserves further trial.

Tertiary Prevention

Reduction of Disability

Illnesses that can neither be prevented nor shortened in duration can sometimes be made less disabling through various devices. The fact that we cannot prevent schizophrenia, for example, nor shorten its course, should not blind us to the fact that we have a number of very powerful technics for reducing the disability of schizophrenes. At present the mental health field has three types of tools for lowering the amount of disability experienced by a population. First, there are a number of social measures which can be taken, such as the formation of patient clubs, the rearrangement of hospital organization in the direction of therapeutic communities, the education of the public to tolerate the disabilities of chronically disabled patients, and the creation of various forms of social protection for disabled patients (committees to care for property and prevent exploitation of work and of sex, sheltered workshops, supervised residences, etc.). Second, there are educational and psychotherapeutic methods for reducing disability: teaching disabled persons to use undamaged latent skills, teaching them to avoid hazards arising from their disabilities, and teaching them to make use of the social resources mentioned above. Third, there are pharmacologic methods for reducing disabilities due to impulsiveness, insomnia, anxiety, restlessness, or inertia.

Death—The final disablement is, of course, death. While mortality rates have long been regarded as indexes to the health progress of a community, mental health programs have hardly ever used these rates as a tool for self-appraisal. Nonetheless, we know that some mental disorders can lead to death and at times psychiatric treatment is determined by estimates regarding the danger to life created by an illness. Thus, our certification laws lean heavily on the concept of the patient's "danger to himself or others"—the danger referred to here being largely the danger of suicide or murder. Public anxiety regarding the dangers arising from mental illness has played a large role in creating and maintaining the present policy of overinstitutionalization, so that progress in the reduction of disability of the mentally ill will require systematic alleviation of this anxiety. To do so it will be necessary to educate people to understand that violence in the community is not primarily a product of mental disorder and that few mental disorders will markedly increase the likelihood of violence. It must also be made clear that present knowledge does not make it easy for psychiatrists to predict who will commit violence against his own or another's person and that professionals cannot undertake to provide perfect community protection from physical violence.

However, as our knowledge increases regarding the prognosis of certain illnesses and our therapeutic armamentarium develops, we shall become more capable of identifying these persons and more effective in our treatment and rehabilitation of them. Since many suicides are associated with depressive states amenable to early treatment, it should be expected that a mental health program should reduce the incidence of

suicide, although it is not entirely preventable with present knowledge.[15] So far as is known, only a small proportion of homicides are attributable to definable mental disorders amenable to early diagnosis and treatment. It is to be hoped that our knowledge will increase sufficiently to make homicide, a declining phenomenon, an anachronistic form of human behavior.

Hospitalization—Hospitalization is to be regarded here as a severe form of disability. While it is true that some treatments are best obtained in hospitals (and hence there are instances of persons overcoming a chronic disability through a short term in hospital), mental hospitals have had so many uses other than therapeutic that it must be pointed out that few of the patient days spent in mental hospitals are spent there in order to obtain diagnosis and treatment. The situation is rapidly changing today, but in many communities a large proportion of persons in mental hospitals do not need to be there for treatment, or protection, or for the protection of the community. This is not due to the failure of any particular group or profession, but is the consequence of a social heritage of misconceptions about the nature of mental illnesses and about the proper organization and use of mental hospitals. If we wish to emancipate ourselves from this social heritage we will need a concerted effort by mental hospital staffs, health and welfare departments, the organs of mass communication, and those who are responsible for transmitting social inheritance to the next generation—the school teachers.

There is reason to believe that some communities have experienced quite a rapid decline in mental hospitalization over the past two decades without there having been introduced some new definitive treatment to account for this change. These drops in the prevalence of institutionalization are apparently due to a few outstanding personalities who have taken seriously the generally forgotten teachings of Pinel regarding the mental functioning of psychotics. One such individual is Dr. T. P. Rees, who has been putting Pinel's ideas into action at the Warlingham Park Hospital in Croyden, England. Key to this concept of mental illness, which apparently underlies the shift in rates, is the proposition that the capacity for taking social responsibility atrophies, like muscle, with disuse.[16] Rees makes systematic efforts during all stages of patient care to identify areas of life in which they may continue to exercise responsibility and invents technics to permit them to do so. The result is that social behavior does not decay as rapidly and that a much larger proportion of patients proceed in a shorter time to regain the capacity to lead independent responsible lives than patients treated in the usual mental hospital manner. This conceptual change in treatment can be looked upon as paralleling the change that occurred in physical medicine following the introduction of the concept of early ambulation; without adequate understanding of the processes involved it has some of the same inherent dangers.

Of course this principle cannot be applied by a mental hospital receiving persons from a fearful community which believes that the function of the hospital is to keep ill persons out of sight and mind. The hospital cannot change its basic practices unless the community's officials and its leading citizens produce a concomitant change in community attitudes. In addition, the relationships between hospital and community will need to change since both patients and professionals will become much more closely intertwined with the people of the community.

The new tranquilizing drugs have appeared at the same time as these social changes have been brought to the atten-

tion of the professional world. They will undoubtedly increase our ability to help mentally ill persons live in the community. The drugs have been embraced at a much greater speed than the changes in social organization and practice referred to above; both the social changes and tranquilizers appear to reduce the duration of hospital stay and to reduce the amount of disturbed behavior. Little is known about the independent effect of these tranquilizers because there has been little exploration by staffs working in community-oriented mental hospitals. However, from what is known, it is clear that they offer a valuable new tool for reducing disability, particularly from schizophrenia.

Maintenance of Social Roles—The above remarks assume that being hospitalized is a severe form of social disability, since persons in hospitals are prevented from participating as active, responsible members of the community. A less severe form of social disability is represented by persons who cannot take part in two major types of social enterprise—attendance at schools and at work.

The child who is excluded from school because of a mental disorder is more disabled than a child with the same disorder who manages to stay in school. As was previously noted, there exist three types of tools to reduce the proportion of children excluded from school because of mental disorders. Thus we find that modification of schools as social institutions to make them more adaptable to the various emotional needs of children has long been going on under the slogan of "the child-centered school." Whatever else this movement does, it is highly likely that it makes it possible for a larger proportion of children whose mental functioning is reduced in flexibility or toughness to find a place in the school and a way of living with it. Again, various measures have been devised for helping children to adapt to school life early in their student careers. Such devices as kindergarten, playschool, counseling about anxieties during the first week of school, and permitting mothers to stay with their children during the first weeks of school are social procedures which make for a greater inclusion of children into the school. The development of new teaching methods for the physically, mentally, or emotionally handicapped child decreases the proportion of children with unprevented chronic disorders who are excluded from school. Educational and psychotherapeutic methods are also used to reduce childhood school disabilities; here the program needs to be directed toward teacher, mother, and child.

Adult disability from work because of the presence of unprevented or interminable mental disorders can also be reduced by social, educational, psychotherapeutic, and pharmacologic methods. There are many known technics for accomplishing these objectives, but what is needed is a systematic review of available technics for reducing the proportion of persons with mental disorders who are disabled from holding social roles either at school or at work. Since it is not fashionable for the clinical specialists to define their function in such limited and specific terms there is no current authoritative statement of what technics have been established for reaching these goals. Obviously, however, if a community mental health program seeks to reduce the amount of disability produced by mental disorders and exclusion from school and work situations is regarded as a form of serious disability, then such a statement is needed.

Disability for other social roles can also be reduced by present technics. Inability to carry familial responsibilities of child rearing, contributing financially to the upkeep of a home, doing housework, etc., could be speci-

fied, and many of our present educational and phychotherapeutic technics, many of our technics for improving participation in social organizations, and some of our pharmacologic technics could be used to reduce the proportion of mentally disordered persons who are disabled in these ways. In order to do this, one must differentiate between the disorders one is seeking to terminate and disorders one does not know how to terminate, and concentrate available resources on achieving the greatest possible reduction in morbidity and in disability in the population for whom a mental health program is designed.

Conclusion

It should be emphasized that while most clinic staffs would agree with these statements they would not regard them as an adequate set of goals for the clinic's relationship to its case load. What one considers worth-while goals, depends, of course, on one's point of view. I have tried to point out that from the public health approach it is worthwhile to give first priority to preventing what is preventable, second priority to terminating or arresting what can be terminated or arrested, and third priority to reducing disability from disorders which have not been prevented, terminated, or arrested.

These are the things that can be done to control mental disorders among the people of a community. It is clear that most of them are not being done either as well or as intensively as they should be done. Other things can be done about mental disorders; we can make detailed psychologic and psychodynamic studies, biochemical analyses, autopsies, epidemiologic studies, and other researches to get new knowledge to strengthen our ability to control mental disorders (and these are all very much needed); we can remove dangerous persons from freedom to do harm; we can tell the public how good or how bad mental hospitals are; and there are other things we can do. But only by preventing the preventable disorders, terminating the terminable disorders, and reducing disability experienced from mental disorders will we control mental disorders among the people of a community. The public health approach should concentrate on improving the people's health.

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Measurement of Prevalence of Chronic Disease by Household Interviews and Clinical Evaluations

DEAN E. KRUEGER

The conclusion reached here is that the lay interview is not now, or likely soon to become, a valuable tool for measuring the prevalence of diagnosable chronic disease. Evidence gained in this study that improvement of content and technic in interviewing might be effected does not alter the conclusion.

The most widely used data on the prevalence of chronic diseases in the general population have been gathered in household interview surveys. If information about the prevalence of disease among the people is desired, it seems reasonable to go out and ask them about their health. This has usually involved a nonmedical person interviewing one or more members of a family about the health of all members.

Many surveys of this type have been made in the United States during the last three decades, as well as in other countries. Some have been directed to national population samples; most have covered samples of the population of localities. They have inquired about cases or episodes of acute and chronic disease during a specified period of time, about diagnosis or other description of the condition, and about the duration and severity of illness and disabling effect caused by the disease.

Data on the numbers of cases of chronic disease as determined by medical examinations—rather than through lay interviews—are also available, but they usually cover special groups of people rather than the general population. The special group may be the patients admitted to a clinic, the policyholders in an insurance plan, or some other group whose characteristics differ from those of the general population.

The unit of measurement in studies of the prevalence of disease is difficult to define. The existence of many diseases—especially the chronic diseases with which this paper is concerned—has been viewed by Dorn [1] as a point on the continuum from freedom from disease to the existence of disease, illness, disability, and death. The prevalence of chronic disease as measured in any study should be defined in terms of the location of the point in the range from health to death at which disease is said to exist, and further, in terms of the method used to determine which persons fall on the disease side of the point and which on the side of absence of disease. In practice, such definition is difficult to achieve.

This continuum has been described by Woolsey and Nisselson [2] as having two aspects: (1) a continuum of pathologic change describable primarily by clinical and laboratory means, e.g., through medical examinations; and (2)

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a continuum of sickness describable only by how the person feels, e.g., through an interview process. A point on the continuum of pathologic change defines the prevalence of disease, while a point on the continuum of sickness defines the prevalence of subjective feelings of illness. Medical examinations can be used to gather data pertaining to the continuum of sickness, though perhaps at unwarranted cost; and interviews can be used to gather data pertaining to the continuum of pathologic abnormality, though perhaps incompletely and inaccurately. There are problems in setting the point, and of observing people with respect to it, on either continuum.

Uses to which data on prevalence of chronic disease and illness are put should influence the selection of the continuum against which a population will be measured. An important use of data on prevalence is the study of how the cases of a particular disease are distributed among the population, as part of the search for clues to its causation and means for its control. Another important use is in planning programs of prevention and of care. In many instances of these kinds of uses, the most nearly complete count of cases of disease which it is possible to obtain is essential, as is use of a broad definition of disease.

Available data on the prevalence and distribution of chronic disease among the population are in the main those gathered in interview surveys of health. These surveys have usually attempted to measure not only the existence, duration and severity of illness, but also the cause of feelings of illness, i.e., the disease. This offers the potential user of the data, as well as the collector, the tempting opportunity to consider them as reflecting the prevalence of disease, whether or not causing illness, as well as the prevalence of illness and disability. Little attempt has been made to check the completeness and accuracy of data on the prevalence of disease from interview surveys against clinical and laboratory determinations of the existence of pathologic abnormality.

This is a partial report on one comparison of the prevalence of chronic disease as measured by household interviews and by clinical examinations. The Commission on Chronic Illness studied chronic disease and illness in a sample of the general population of Baltimore, exclusive of persons residing in medical institutions for long-term care, during 1953–1955.[3] The major purpose of this research was to describe the amount and kind of chronic disease existing in the general population and to estimate needs for care and potential for rehabilitation of disabled persons. The methods used included interviews with a sample of 3,700 Baltimore households having 11,574 members, and clinical examination of a subsample of 809 individuals.

The sample of households was selected by the U. S. Bureau of the Census for the Commission on Chronic Illness; the interviews about health were conducted by the Bureau of the Census, using a questionnaire designed jointly by the two agencies. The questionnaire included both general questions about sickness, injuries, impairments and chronic conditions, and extensive checklists of chronic diseases and symptoms of disease. An interview was completed for 98 per cent of the occupied dwelling places at the addresses in the total sample, with one respondent supplying the information for all related members of the household in most instances.

Each person covered by the interview survey was classified according to interview reports of disease, into one of eight health-related strata. Differential sampling was used to select the subsample for clinical examination, ranging from 100 per cent for the most diseased stratum to 6 per cent for the no-illness stratum. This plan was used in order

to devote most of the clinical effort to persons having chronic diseases. Results for each of the health-related sampling strata would be weighted in inverse ratio to the sampling proportion.

Employing physicians specializing in internal medicine and the facilities of the Johns Hopkins Hospital, 809 persons out of the subsample of 1,292 persons selected for diagnostic examinations had their medical history taken and were given a physical examination and a series of tests including miniature chest film, electrocardiogram, blood pressure, blood sugar, urinalysis, serologic test for syphilis, vision, hearing, and height and weight. Additional tests, and consultation by other specialists were used as indicated.

Participation in this phase of the study was 63 per cent. Examination of the characteristics of participants and nonparticipants as reported in the interview survey revealed substantially different rates of participation by age—especially important in the prevalence of chronic disease—differences among the health-related sampling strata, and smaller differences by color and by sex. These were the most important health-related characteristics of participants and nonparticipants in clinical examinations that were known from the interview survey. The results of the clinical examination of individuals were therefore weighted according to the rates of participation among age-sex-color groups and among the health-related sampling strata, as well as for the different sampling proportions.

The weighting procedure minimized bias in the clinical data due to differences in the response rate between these groups. Any response bias remaining in the data would be primarily that due to response selection within each group. A measure of the remaining bias was available from the interview data on health. The weighting procedure developed for the clinical data was designed to provide an estimate of the results that would have been obtained by examination of the total survey sample. Applying the same weighting procedure to the interview data on the 809 persons examined provided an estimate of the interview results for the total survey sample. This estimate, based on the subsample, was compared with actual interview data on the total sample. The estimate showed a slight excess over the actual figures for the total number of chronic conditions reported in interviews, a slight deficiency for days of disability reported, slight excesses for the numbers of some diagnoses and slight deficiencies for others. Thus, there is no consistent pattern of difference between weighted interview data on the subsample participating in examinations and the interview data on the total survey sample. While this does not prove the absence of response bias in the weighted clinical examination data, it is a comforting negative observation.

A procedure was developed for comparing all health conditions reported for a person in the interview with those diagnosed in clinical examination. Its purpose was to determine the proportion of all cases of "diagnosable chronic disease" that was "matched" by interview reports of chronic conditions, and the proportion of all interview reports of chronic conditions that could be confirmed by clinical examinations. Conditions which ceased to exist, or which had their onset between the dates of interview and examination were excluded from this comparison.[4]

For each three-digit code in the International Statistical Classification, a list was made of the codes for all other conditions considered to be "matching." These definitions of match, presented elsewhere,[3] can be applied independently by two or more persons with essentially the same results. In general, a match exists if the conditions reported from

the two sources pertain to the same or related pathologic abnormalities. For example, an interview report of heart trouble is a match with clinical diagnoses of coronary heart disease, of hypertension without heart involvement, or of general arteriosclerosis. A symptom is a match with a diagnosis if the symptom is caused by the disease.

Using these broad definitions of match, only 22 per cent of all chronic conditions diagnosed in clinical examinations were matched by interview reports. For any purpose for which a nearly complete count of diagnosable chronic disease is important, less than a fourth is unacceptably low.

The proportion of clinical diagnoses matched by interview reports varied widely among diagnosis groups. It was high for some important chronic diseases: rheumatoid arthritis, 100 per cent matched; coronary disease, 64 per cent, and cancer, 59. It was well under one-fourth for others: general arteriosclerosis, 1 per cent matched; tuberculosis, 8 per cent; diseases of thyroid, 8; cataract not causing blindness, 10; hypertension without heart involvement, 15; benign neoplasms of uterus, 17; and hernia of abdominal cavity, 21 per cent. The small number of cases on which these results are based, for some diseases, should be noted (Table 1).

Table 1—Number of Clinical Examination Diagnoses, and Percentage (Weighted Number) Matched [1] by Interview Reports (Baltimore Health Survey, 1953–1955)

Diagnosis	All Conditions		Conditions Which Could Have Been Reported [2]	
	Unweighted Number of Conditions	Percentage Matched (Based on Weighted Number)	Unweighted Number of Conditions	Percentage Matched (Based on Weighted Number)
All Diagnoses	1,958	22	1,564	30
Tuberculosis—all forms	13	8	7	33
Syphilis	47	*	10	2
Neoplasms [3]	93	12	82	18
Malignant neoplasms	14	59	14	59
Benign neoplasms of uterus	39	17	32	41
Benign neoplasms of other sites	38	5	34	6
Hay fever	19	73	19	73
Asthma	12	99	12	99
Other allergies	10	60	9	68
Diseases of thyroid	13	8	9	10
Diabetes mellitus	74	37	55	95
Obesity [4]	154	4	119	6
Anemia—all forms	36	13	5	49
Psychoses	17	16	17	16
Psychoneuroses	51	17	50	17
Psychophysiologic autonomic and visceral disorders	18	16	18	16
Other mental, psychologic and personality disorders	25	11	24	11
Vascular lesions of Central Nervous System	14	48	13	52
Cerebral paralysis (not elsewhere classifiable)	18	24	18	24
Other diseases of Central Nervous System	28	43	28	43

Table 1—Continued

Diagnosis	All Conditions		Conditions Which Could Have Been Reported [2]	
	Unweighted Number of Conditions	Percentage Matched (Based on Weighted Number)	Unweighted Number of Conditions	Percentage Matched (Based on Weighted Number)
Cataract (not causing blindness)	45	10	25	20
Heart disease	150	38	125	52
Rheumatic heart disease	12	33	10	100
Coronary artery disease and angina pectoris	41	64	38	67
Hypertensive heart disease	75	33	62	41
Other heart disease	22	17	15	61
Hypertension without heart involvement	77	15	30	63
Arteriosclerosis	24	1	6	18
Varicose veins of lower extremities	52	27	51	28
Hemorrhoids	50	35	47	37
Other diseases of circulatory system	23	10	18	14
Chronic sinusitis	12	72	12	72
Hernia of abdominal cavity	37	21	34	25
Diseases of gall bladder	14	35	13	41
Diseases of kidney	12	23	9	43
Diseases of prostate	26	—	11	—
Cervicitis	13	8	8	11
Other diseases of female genital organs	68	21	45	34
Rheumatoid arthritis	12	100	12	100
Osteoarthritis	104	49	86	72
Other forms of arthritis	12	23	9	25
Low back strain	27	34	27	34
Orthopedic impairments not elsewhere classifiable (except cerebral paralysis)	50	29	47	33
Blindness and impaired vision	12	47	12	47
Deafness and impaired hearing	20	42	20	42
Symptoms referable to limbs and back	19	76	19	76
Other symptoms, senility and ill-defined causes	55	17	43	31
All other diagnoses	402	17	360	19

* Less than 0.5 per cent.

[1] Simplified definition of match: Reports from the two sources pertain to the same or related pathologic abnormalities.

[2] Conditions that have caused symptoms, which were made known through medical attention, or whose existence is obvious.

[3] Includes neoplasms of unspecified nature.

[4] Obesity was diagnosed only if the patient also had heart disease, hypertension, diabetes, or an orthopedic defect of the lower extremities adversely affected by weight-bearing.

Because the interviews secured reports that matched only a fourth of the diseases diagnosed in clinical examinations, the clinical data were searched for subgroups for which larger proportions of diagnoses were matched by interview reports. The first step was to segregate conditions which could not have been reported in interviews because they had never caused symptoms, had never been made known through medical attention, and the existence of which

was not obvious. The determination whether a condition could have been reported was made through an intensive study of the entire clinical record. When the conditions which could not have been reported are excluded, the proportion of the remaining clinical diagnoses which were matched by interview reports is increased only to 30 per cent—a third more than the 22 per cent when all clinical diagnoses are included. Among diagnostic groups, the increase in proportion matched is larger or smaller depending on how many cases of the disease could not have been reported. For example, for cancer there was no increase because all cases of cancer found in the clinic were previously known and could have been reported. Much of the diabetes, however, was asymptomatic and not previously diagnosed, so that the proportion matched increased from 37 per cent of all cases, to 95 per cent of the cases which could have been reported. Other examples are: from 1 per cent to 18 per cent for general arteriosclerosis; 8 to 33 per cent for tuberculosis; 8 to 10 for diseases of thyroid; 10 to 20 for cataract; 15 to 63 for hypertension without heart involvement; 17 to 41 for benign neoplasm of uterus; and 21 to 25 for hernia of abdominal cavity.

Some of the conditions diagnosed in clinical examinations may not have been considered by persons interviewed to be health conditions. The best example and the most frequent is obesity, which was diagnosed only for persons who also had a disease that was likely to be adversely affected by obesity. When all clinical diagnoses of obesity are omitted from the comparison, however, the proportion of other diagnoses matched by interview reports is increased only from 22 to 25 per cent; for conditions which could have been reported, the increase in proportion matched is only from 30 to 32 per cent.

All the following data pertain to the conditions that could have been reported. The severity of the cases of disease might be expected to affect the completeness of reporting in interviews as measured against clinical examinations. Nearly two-thirds of all conditions diagnosed were classified by examining physicians as "mild" rather than "moderate" or "severe," so that mildness might be an important factor in nonreporting. The results, however, show no significant difference in completeness of reporting by severity of the case; of diagnosed conditions classified as mild, 26 per cent were matched by interview reports, and of those classified as moderate or as severe, 28 per cent were matched. Clinical diagnoses for which a severity classification was not assigned by examining physicians were matched more frequently—a result for which no cause has been discovered.

Other studies have found that people report more conditions for themselves in interviews than they report for other members of their families. While this study did not include an experimental design with randomly selected respondents to check this finding, it does show that 33 per cent of diagnosed chronic diseases of persons who were the interview respondents were matched by interview reports, whereas 25 per cent were matched for persons who were not respondents. The increase to 33 per cent matched, for self-respondents, over the 30 per cent matched without regard to who responded, would not justify the extra cost of using self-respondents exclusively.

Thirty-two per cent of chronic conditions diagnosed for females were matched by interview reports, and 26 per cent of those for males. Part of this difference is undoubtedly due to the fact that the great majority of respondents were women, and the proportion matched was a little higher for respondents than for persons who were not

respondents. The proportion matched was a little higher for whites (31 per cent) than for nonwhites (25 per cent), and for young people than for older people.

The sample of persons given clinical examinations was not large enough to permit cross-classification of the several factors that are related to the proportion of match. It is conceivable that for some groups with a particular combination of characteristics related to higher proportion of match, e.g., white females aged from 25 to 34 responding for themselves, the proportion might be quite high. The practical value of such a finding, however, would be small for general population studies.

Most of the interview reports that were matches with clinical diagnoses were reported in rather specific terms. In comparing data from the two sources, one of six degrees of specificity of agreement was assigned to each matching pair. Identical three-digit codes of the International Statistical Classification constituted the highest degree of specificity, and narrow groups of codes the second degree. Three-fourths of matching pairs fell in these two high degrees of specificity of agreement.

Reversing the direction of the comparison and starting with the interview reports, 70 per cent of them were confirmed by clinical diagnoses as meeting the definition of match, and 30 per cent could not be confirmed. Conditions which may have ceased to exist between the dates of interview and examinations are excluded. The 30 per cent unconfirmed constitutes, to the best of our ability to diagnose disease, erroneous reporting in interviews. The possibility that pathologic abnormality exists is not ruled out however; it may exist but not have been found in the examination, or it may exist and have been reported in terms which did not enable its being identified with diseases found in clinical examination.

By diagnosis, the proportion of interview reports not confirmed by clinical diagnoses was highest for: diseases of kidney, 86 per cent; migraine, 65 per cent; and anemia, 64 per cent. Erroneous self-diagnosis is probably responsible for the findings for diseases of kidney and for anemia; misuse of words, for migraine. On the other hand, all cases of tuberculosis, cataract, rheumatic fever, and coronary disease reported in interviews were confirmed by clinical examination.

The reliability of clinical examinations as a means of measuring the prevalence of chronic disease should be tested. Another group of physicians working in another setting and using different tests probably would have obtained results different from those of this study. Differences were observed, but were not measured, among the study physicians in their clinical judgment of what pathologic abnormalities warrant the recording of diagnoses. The differences among physicians were reduced, however, by application of definitions of the abnormalities to be recorded as diagnoses, for those diseases for which it was possible to construct definitions. If clinical examinations are to be used more extensively in studies of the prevalence of chronic disease, criteria for diagnosis should be developed which would emphasize the need for uniformity for research purposes without denying the importance of clinical judgment.

Even in the absence of proof of reliability, clinical examinations are highly sensitive to the existence of disease. They are recommended as a means of measuring the prevalence of chronic disease for any use for which the desired definition of prevalence is a point on the continuum from health to disease preceding the onset of illness, disability and defect. The household interview as conducted in this study did not serve this purpose. Clinical examinations

would probably produce more nearly complete, accurate, and specific data on the prevalence of chronic disease, as opposed to the prevalence of disability, than household interviews wherever the point on the range from health to disease is set.

Reasons for most of the diagnosable conditions not being matched by interview reports in this study cannot be discussed in detail here. They include lack of knowledge of the condition; use of household respondents rather than individual respondents; memory loss; deliberate withholding of information; differences in concepts of what constitutes disease, defect, and symptoms; limitations of the questions asked; language difficulties, and low mentality of some respondents. Many of these are reflections of people's deeply ingrained attitudes, their social patterns, and their capacities which are not amenable to rapid change. The evidence from this study is that though some improvements in content and technic of interviewing can be made, the lay interview is not now or likely to soon become a valuable tool in the measurement of the prevalence of diagnosable chronic disease.

Studies that test the completeness of interview reporting of chronic diseases using other definitions of prevalence should be made if data based on those definitions would serve an important purpose.

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4. Interview data include all chronic conditions reported as present during the twelve months preceding the survey. Clinical data include chronic conditions present at the date of examination, plus those reported in interviews and no longer present but whose prior existence could be confirmed (e.g., a repaired hernia).

National Science Foundation Postdoctoral Fellowships

The National Science Foundation will award a number of postdoctoral fellowships on October 16, applications for which must be received in the offices of the National Academy of Sciences not later than September 3, 1957. Among the fields in which awards are made are the physical, medical, biological, and engineering sciences, particularly interdisciplinary fields and "fields of convergence between the national and social sciences."

Holders of a degree such as Ph.D., M.D., D.D.S., D.V.M., or Sc.D., in such fields are eligible. The annual stipend is $3,800 with allowance for travel and for dependents. Tuition and other fees are paid by the Foundation.

Application materials from Fellowship Office, National Academy of Sciences-National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C.

A Study of Occupational Associations with Gastric Cancer

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The direct associations between gastric cancer and certain occupations indicated by this study need to be interpreted cautiously, the authors point out. That the relationships deserve more study is their justified conclusion.

In New York State in 1954 cancer of the stomach followed cancer of the lung and bronchus as the second most deadly cancer site in males, accounting for 1,797 deaths, for a rate of 23.5 per 100,000 population. In females it followed cancer of the breast and cancer of the large intestine as the third most deadly site, accounting for 1,145 deaths, for a rate of 14.1. We know of only one published study which provides a substantial indication of an association between occupational activities and gastric cancer. This is a report by Young and Russell [1] which suggests an excessive liability to gastric cancer among iron, coal, and slate miners, and among workers engaged in the manufacture of wool and cotton goods. The present report is part of a wider study of the occupational histories of a group of cancer patients. A previous paper [2] reported the results for the lung cancer patients.

Method of Study

An occupational history was obtained by personal interview from male admissions aged 25 to 74 at the Roswell Park Memorial Institute in Buffalo, N. Y., between November, 1948, and September, 1951. The history covered all occupations in which the patient was ever employed. Also, the patient was asked if he ever had been occupationally exposed to any of a specified list of physical and chemical agents. In addition, a team of industrial chemists analyzed the job descriptions obtained from each patient and compiled a probable list of exposures to various chemical and physical agents associated with each job, to supplement those exposures actually reported by the patient.* Thus, both specific information from the patient and the judgment of industrial chemists were used in determining probable exposures to various physical and chemical hazards. Obviously, any indicated relationships between gastric cancer and occupational exposures determined

* Grateful acknowledgment is made to the Division of Industrial Hygiene, New York State Department of Labor, for their assistance in this and other phases of the study.

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in this way require further verification by field work among those definitely exposed to the implicated factors.

Patients with cancers of the respiratory system, urinary system, skin, and hematopoietic system were each to be studied separately, because of known or suspected occupational carcinogens for these site groups. Patients with stomach or esophagus cancer were also separated for study and are being analyzed separately from each other. This decision was based on a report by Stocks,[3] which showed that the male death rate in England for both these sites increased steadily as social class decreased. The present report is concerned primarily with the analysis of the interviews that were collected for 56 stomach cancer cases.

Four distinct control groups were selected from the total set of patients that had been interviewed. Patients with cancer of sites other than those being studied separately were divided into two control groups, namely, digestive cancer other than esophagus or stomach (primarily rectum and colon), and other cancer (primarily buccal cavity and prostate). Patients with precancerous or benign tumor diagnoses were not included in any control group. The remaining two control groups are: nontumor diagnoses of the digestive system other than esophagus or stomach (such as hemorrhoids or cirrhosis of the liver), and nontumor diagnoses other than digestive, respiratory, urinary, skin, or hematopoietic (such as arthritis or syphilis). Each of the control groups was matched to the stomach cancer group by age and by population size of place of residence in order to preclude the possibility that age or urbanicity differences between the groups might be responsible for any difference noted in occupational distribution.

Each job of each patient was assigned a five-digit code number, according to an index published by the U. S. Bureau of the Census.[4] Each occupational exposure to a physical or chemical agent was assigned a three-digit code number, according to a code compiled for the study by the Division of Industrial Hygiene, New York State Department of Labor. The various employments were grouped into 18 broad occupation groups. Stomach cancer and control cases were compared regarding the proportion who had ever worked in the various occupation groups, industries, and specific occupations, and who had ever been occupationally exposed to the various physical or chemical agents. Duration and concentration of exposure were also considered. After three categories involving the above occupational variables were found to be associated with stomach cancer to a statistically significant extent, certain available nonoccupational variables were analyzed for the cases involved to see if they could be playing a role in the occupational associations.

Normal curve significance tests with continuity corrections were used on differences between percentages, when sample size was appropriate. When sample size was too small for such tests, exact tests by the "point-binomial" method were used.

Results of Study: Occupational Factors

Exposure to Iron Dust—Only one occupation group, the metal products occupation group, was significantly associated with the stomach cancer group. This occupation group includes craftsmen, foremen, operatives, and laborers in 15 metal industries ranging from blast furnaces, steel works, and rolling mills through various metal machinery and transportation equipment manufacturing industries. As shown in row 2b of Table 1, 66.1 per cent of the stomach cancer cases and 43.4 per cent of the controls had ever worked in this occupation group, with $P < 0.002$ for this

difference. Although the data are not shown, the relative difference between the stomach cancer group and the control became even greater, when the proportion who had ever worked in this occupation group for at least five years was considered.

When stomach cancer cases and controls who had worked in the metal products occupation group were compared regarding exposures ever encountered, it appeared that two exposures completely accounted for the significance of the occupation group. The data for one of these exposures, iron dust, appear in Table 1. The data for the other of these exposures, grain dust encountered in other employment subsequent to employment in the metal products occupation group, appear in Table 2.

Cornfield [5] has shown that if the relative frequency of a characteristic in the disease group equals "a," and in the control group equals "b," then a reasonable estimate of the risk of getting the

Table 1—Cases Who Had Ever Worked in the Metal Products Occupation Group [1] and Cases Who Had Ever Been Occupationally Exposed to Iron Dust Among Stomach Cancer Cases and Controls

Occupational Category	Row No.	Total Cases	Stomach Cancer Cases	Controls					Estimated Relative Risk of Stomach Cancer [2]
				Groups 1–4	Group 1 *	Group 2 †	Group 3 ‡	Group 4 **	
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Total cases	1	733	56	677	147	296	117	117	1.0
Metal products occupation group:									
No.	2a	331	37	294	56	128	53	57	–
Per cent of total cases	2b	45.2	66.1	43.4	38.1	43.2	45.3	48.7	1.5
Exposed to iron dust:									
Total No. in study	3a	172	21	151	33	57	27	34	–
Per cent of total cases	3b	23.5	37.5	22.3	22.4	19.3	23.1	29.1	1.7
Exposed to iron dust for 10 or more years:									
Total No. in study	4a	82	15	67	13	27	13	14	–
Per cent of total cases	4b	11.2	26.8	9.9	8.8	9.1	11.1	12.0	2.7
No. in study, exclusive of those whose exposure was probably of negligible concentration [3]	4c	37	12	25	4	11	5	5	–
Per cent of total cases	4d	5.0	21.4	3.7	2.7	3.7	4.3	4.3	5.8
No. whose 10 years of exposure included at least 3 years in duties probably involving a high concentration of exposure [4]	4e	14	7	7	1	2	3	1	–
Row 4e as per cent of row 2a	4f	4.2	18.9	2.4	1.8	1.6	5.7	1.8	–
Row 4e as per cent of total cases	4g	1.9	12.5	1.0	0.7	0.7	2.6	0.9	12.5

* Digestive cancer other than esophagus or stomach.

† Cancer, other than digestive, respiratory, urinary, skin, or hematopoietic.

‡ Nontumor diagnoses of the digestive system, other than esophagus or stomach.

** Nontumor diagnoses, other than digestive, respiratory, urinary, skin, or hematopoietic.

[1] Craftsmen, foremen, operatives, or laborers in the metal products industries.

[2] Equals the per cent of stomach cancer cases in a given category in column (C) divided by the corresponding per cent of controls in column (D).

[3] Excluded were cases whose assigned exposure to iron dust was on jobs around metal with descriptions such as, "loading and checking parts," "stock room hauling," "inspector," "maintenance man in plant," "railroad car repairman," "oiler and washer," etc.

[4] "Duties probably involving a high concentration of exposure" included, "grinder," "chipper," "filer," "scraper," or "blacksmith." All 7 controls and 5 of the 7 stomach cancer cases had such duties for 10 or more years.

disease for those with the characteristic, relative to the risk in the population, is equal to "a/b." In column (I) of Table 1 the estimated relative risk of stomach cancer is shown for each occupational category in the table. The study group is too small and the population sampled is too special for these to be considered as reliable estimates for the general population. They are included only for the purpose of suggesting that the risk increases as the duration and concentration of exposure to iron dust increases.

In row 3b of Table 1 it is seen that the estimated relative risk of stomach cancer was slightly higher for the total group exposed to iron dust than it was for the metal products occupation group. Of course, the great majority of those exposed to iron dust had been so exposed while employed in the metal products occupation group. The estimated relative risk of stomach cancer was still higher among those who had at least 10 years of exposure to iron dust, as shown in row 4b. When the latter group was reduced by excluding those whose exposure was probably of negligible concentration (as illustrated in footnote 3 of the table), the estimated relative risk among those remaining rose to 5.8, as seen in row 4d. When the latter group was further reduced by excluding exposures of probably moderate or indeterminate concentration, such as for "machine operator," "shears operator," "machine tool work," "milling machine operator," and "drill press operator," the estimated relative risk among those remaining rose to 12.5, as seen in row 4g. The numbers in row 4e, which are the numerators of the percentages of row 4g, include only those cases whose exposure was probably of high concentration, as defined in footnote No. 4 of the table. While the decisions on what terms to include in rows 4c and 4e were subjective, these decisions were applied in a consistent manner to both the stomach cancer and control groups.

Row 4e defines the strongest occupational association with stomach cancer found in the study. All patients included in row 4e happen to be included in row 2a, the metal products occupation group. Row 4f shows that of those who had been in the metal products occupation group, 18.9 per cent of the stomach cancer cases and only 2.4 per cent of controls had the exposure of row 4e, with $P < 0.0002$ for the difference. Thus, concentrated and prolonged exposure to iron dust was a significant factor in distinguishing stomach cancer cases who had been employed in the metal products occupation group from controls who had been so employed. In row 4g it is seen that 12.5 per cent of the total stomach cancer group and only 1.0 per cent of controls had such an exposure. The closeness of the percentages in the separate control groups should be noted.

While the hospital, which provided the study cases is located in Buffalo, a city with large metal industries, this cannot explain the reason a greater proportion of stomach cancer cases than of controls was exposed to iron dust, since the controls were matched to include the same proportion of Buffalo residents as the stomach cancer group.

Exposure to Grain Dust—When stomach cancer cases and controls who had worked in the metal products occupation group were compared regarding occupational exposures ever encountered, it was noted that grain dust had been encountered by a significantly higher proportion of these stomach cancer cases than of these controls. A scanning of the records gave the impression that the exposure was usually encountered as a farmer, after the period of employment in the metal products occupation group. Therefore, tabulations were made of the factor of exposure to grain dust prior to employ-

ment in the metal products occupation group, and subsequent to such employment, and in the absence of such employment. No association was noted between stomach cancer and exposure to grain dust either prior to, or in the absence of, employment in the metal products occupation group. However, an association was noted for exposure to grain dust subsequent to employment in the metal products occupation group. The results shown in row 2a of Table 2 include only the cases where employment in the metal products occupation group was for at least 10 years and subsequent exposure to grain dust was for at least five years, since the data for these durations show a more striking difference between stomach cancer cases and controls than do the data for all durations combined. To avoid overstating the proportion of study cases falling in the significant occupational categories, the one stomach cancer case included in row 4e of Table 1 that also fit the definition of row 2a of Table 2 is not included in the latter row.

It is seen in row 2b of Table 2 that 12.5 per cent of the stomach cancer cases and only 1.5 per cent of the controls are included in the category, with $P < 0.0002$ for the difference. The closeness of the percentages in the separate controls should be noted. Of the 17 patients in the category, all but one stomach cancer case and two controls were exposed to the grain dust as farmers. The three exceptions were exposed while handling grain in feed mills.

It is doubtful that this finding for grain dust represents a direct relationship between stomach cancer and exposure to grain dust. The histories included questions on extent of exposure to all physical and chemical agents, and while most of these were left blank, those that were filled in usually indicated an exposure to grain dust for only about a week per year. If the finding is

Table 2—Occupational Exposure to Grain Dust Subsequent to Employment in the Metal Products Occupation Group and Occupational Exposure to Inorganic Dust with Free Silica Among Stomach Cancer Cases and Controls

Occupational Category	Row No.	Total Cases	Stomach Cancer Cases	Controls					Estimated Relative Risk of Stomach Cancer *
				Groups 1–4	Group 1	Group 2	Group 3	Group 4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total cases	1	733	56	677	147	296	117	117	1.0
In the metal products occupation group or exposed to iron dust for 10 or more years, with subsequent exposure to grain dust for 5 or more years:									
No.†	2a	17	7	10	4	5	1	0	–
Per cent of total cases	2b	2.3	12.5	1.5	2.7	1.7	0.9	0.0	8.3
Exposed to inorganic dust with free silica for 10 or more years:									
No.‡	3a	63	10	53	9	28	11	5	–
Per cent of total cases	3b	8.6	17.9	7.8	6.1	9.5	9.4	4.3	2.3

* Equals the per cent of stomach cancer cases in a given category, in column (3), divided by the corresponding per cent of controls, in column (4).

† Excludes one stomach cancer case that was counted in row 4e of Table 1.

‡ Excludes one stomach cancer case and one control that were counted in either row 4e of Table 1 or row 2a of this table.

eventually shown by other studies to be valid, we suspect that it represents a relationship between stomach cancer and some other aspect of farm life, such as diet, experienced subsequent to exposure to metals. Even though the finding may be difficult to interpret, we are reporting it, because of the very low probability that it was due to chance.

Exposure to Inorganic Dust with Free Silica—Each of the 406 exposures on the Exposure Code used in the study was analyzed for all cases in the metal products occupation group, with all durations and concentrations of exposure combined. However, after noting the significant findings for iron dust and grain dust, all other dusts on the code were reinvestigated more intensively. One additional significant finding was noted, as shown in Table 2, row 3a.

The 42 stomach cancer cases and 660 controls not in the previously described significant categories (row 4e of Table 1 and row 2a of Table 2) were tabulated separately. Ten of these stomach cancer cases and 53 of these controls had been exposed to "inorganic dust with free silica" for 10 or more years. (Free silica is sand.) In row 3b these numbers are expressed as per cents of total cases, and the difference is significant, with $P < 0.02$. The exposure to inorganic dust with free silica was usually encountered in the course of pick and shovel road labor, coal mining, masonry and stone work, track labor on railroads, or labor on building construction jobs. The relative difference between the stomach cancer and controls groups was increased only slightly when an attempt was made to eliminate those whose exposure was probably of negligible concentration, possibly due to the difficulty in judging this factor from the job descriptions.

This significant category, together with the two previously described, included 42.9 per cent of the stomach cancer cases and only 10.3 per cent of the controls in the study.

Nonoccupational Factors

If a characteristic is truly associated with a disease in the population, it either plays a causative role in that disease, or is in turn associated with some other factor that does. Belief in the causative role of a factor associated with a disease is therefore built up by showing that other factors of possible etiologic significance could not account for the association. While other studies will be required to test the validity of the occupational associations with stomach cancer suggested by this study, available data on nonoccupational variables were examined to see if these variables could account for the occupational associations.

Smoking—We are not aware of any evidence in the literature to indicate an association between smoking and gastric cancer. In this study 19.2 per cent of stomach cancer cases and 24.2 per cent of controls were nonsmokers, and only 21.2 per cent of stomach cancer cases against 28.2 per cent of controls were cigar or pipe smokers who had not smoked cigarettes. While 59.6 per cent of stomach cancer cases were cigarette smokers against 47.6 per cent of controls, the difference was not statistically significant, with $P = 0.09$. Limiting attention to those who had smoked cigarettes for the longer periods of time or who had smoked a higher average number per day did not increase the significance of the results. Thus, this study failed to indicate any appreciable association between smoking and gastric cancer. It was also noted that the cases in two of the three significant occupational categories had smoked less than the average for the study, while the cases in the third significant occupational category had not smoked significantly more than the remaining

cases in the study. It is therefore concluded that, whether or not smoking is a significant factor in gastric cancer, it did not account at all for the significant occupational associations which have been noted.

Color and Marital Status—Every stomach cancer case in the study and almost all the controls were white. Therefore, whether or not color is associated with stomach cancer, it could not account at all for the occupational associations which have been noted. The data on marital status indicated no relationship between this variable and the significant occupational factors which have been noted.

Socioeconomic Status—Stomach cancer apparently is more frequent in the lower socioeconomic groups [3, 6] and the three specific significant occupational categories appear from the type of occupations involved to be associated with low socioeconomic status. The question is, were these occupational categories associated with stomach cancer for specific occupational reasons, or merely because of a tendency for occupations of low socioeconomic status to appear more frequently in the stomach cancer group than in the controls? Although the study cases had not been individually classified according to socioeconomic status, it was possible to analyze this problem to some extent.

The occupation "laborer" is clearly of low socioeconomic status. For individuals who had never been exposed to any of the three significant occupational factors, the proportion who had ever been laborers was examined, to see how probable socioeconomic bias in the stomach cancer group would affect the frequency of a low socioeconomic job. Seven of the 18 appropriate stomach cancer cases had been laborers, or 38.9 per cent, against 101 of the 415 appropriate controls, or 24.3 per cent. While the difference is not statistically significant, it is in the direction expected. However, since 42.9 per cent of the stomach cancer cases and only 10.3 per cent of the controls were in the significant occupation categories, a much greater absolute and relative difference, it appears doubtful that a major portion of this difference can be explained by a general socioeconomic bias in the stomach cancer cases.

Also, it would seem reasonable to assume that those craftsmen, foremen, operatives, or laborers who had been employed in the metal products occupation group for 10 or more years without any exposure to iron dust were of similar socioeconomic status as those employed in that occupation group who did have exposure to iron dust for 10 or more years. The latter group had a significantly higher estimated relative risk of stomach cancer than the former group, with $P < 0.04$. It therefore appears that exposure to iron dust was significantly associated with stomach cancer, independent of the socioeconomic factor.

Nativity of Cases—Thirteen of the stomach cancer cases were born in Poland, or 23.2 per cent compared to 43 controls, or 6.4 per cent, with $P < 0.0001$ for the difference. No other differences for separate countries were significant: 33.9 per cent of the stomach cancer cases and 25.7 per cent of controls were born outside of the United States, exclusive of Poland, a difference which was not significant. While foreign birth other than Polish may be related to stomach cancer, it appeared in this study that Polish birth specifically has a stronger relationship to the disease.

Since high relative frequency of Polish birth was also found to be significantly associated with stomach cancer among those study cases who were not in any of the three significant occupation groups, the significance of the Polish birth factor was independent of occupational factors. Since none of the stomach cancer cases exposed to inor-

ganic dust with free silica had been born in Poland, and since there were enough non-Polish stomach cancer cases who had been exposed to grain dust after metal products employment to keep that exposure significantly high, these two significant occupational factors were independent of Polish birth. Five of the seven stomach cancer cases with prolonged and concentrated exposure to iron dust had been born in Poland, against none of the seven corresponding controls, with $P < 0.02$ for the difference. Therefore, it cannot be said that iron dust was a significant factor independent of Polish birth. However, the fact that those in the study who were both exposed to iron dust and born in Poland had a significantly higher estimated relative risk of stomach cancer than those born in Poland who never were exposed to iron dust, indicates that iron dust was a significant factor, at least when added to the factor of Polish birth.

Bigelow and Lombard [7] reported a very similar association between stomach cancer and nativity. The 10-year average age-adjusted mortality rate for stomach cancer of Russian-born males residing in Boston was the highest among seven foreign-born groups, and significantly higher than for native-born males. Their "Russian-born" group included those born in Russia and Poland.

While Buffalo has a large Polish population, this cannot explain why a greater proportion of our stomach cancer cases than of our controls were born in Poland, since both groups include the same proportion of Buffalo residents.

Discussion

Certain limitations in the data in this study make it appropriate that any new relationships found be considered as suggestive leads only, whose validation depends on further work. The sample of stomach cancer cases was relatively small. Patients admitted to one state hospital may be biased. Also, the assigned exposures can only be considered as probable, rather than definite.

On the other hand, the study method was able to detect a significant association between Polish birth and stomach cancer which had been previously reported in the literature. Also, the occupational associations noted between stomach cancer and iron dust and inorganic dust with free silica are similar to the findings for iron, coal, and slate miners reported by Young and Russell.[1] Furthermore, these two exposures which we found associated with stomach cancer are similar to our findings for lung cancer,[2] where iron dust in combination with excessive heat and free silica were found to be associated factors. These findings for lung cancer tend to confirm the work of previous investigators. Kennaway and Kennaway [8] and Turner and Grace [9] noted increased mortality from lung cancer among metal grinders in England. Bonser, et al.,[10] noted that silica is the common factor in the high incidence of lung cancer among both asbestos textile workers and iron ore miners, and suggested that silica and iron dust together may have a complementary carcinogenic action.

The source and type of data are the same in the lung cancer phase of our study and the present stomach cancer phase. The methodology is similar in the two phases and is, if anything, more definitive in the stomach cancer phase, because additional control groups were used. It would appear that belief in the validity of the occupational associations with stomach cancer that have been noted should be strengthened by the fact that very similar factors were found to be associated with lung cancer in the previous phase of this study and by previous investigators.

We believe that the study method was the most suitable one for the exploration of relatively unknown areas and feel

that the suggestive findings justify additional exploration. Further studies would be desirable which would compare a representative sample of male stomach cancer cases with an age-matched sample of the population in the same area, or which would study large groups of workers definitely exposed to the occupational factors noted in this study.

Summary

1. The complete occupational histories of 56 male hospital stomach cancer cases and 677 control patients from the same hospital were compared. The controls were divided into four separate disease groups and were matched to the stomach cancer cases according to age and population size of place of residence.

2. Recorded or estimated occupational exposure to iron dust was significantly associated with the stomach cancer group: 12.5 per cent of that group had been exposed to iron dust for 10 or more years in jobs the duties of which included at least three years of exposure at a probable high concentration, against 1.0 per cent of the controls.

3. Recorded or estimated occupational exposure to grain dust, usually as a farmer, subsequent to employment involving exposure to metals was significantly associated with the stomach cancer group: 12.5 per cent of that group had been exposed to grain dust for five or more years after exposure to iron dust or employment as a craftsman, foreman, operative, or laborer in the metal products industries for 10 or more years, against 1.5 per cent of the controls. These cases were independent of those described in No. 2. If this finding proves to be valid, we believe that it is more likely to represent a relationship between stomach cancer and some other phase of farming life than with exposure to grain dust itself.

4. Recorded or estimated occupational exposure to "inorganic dust with free silica," which was encountered in such work as pick and shovel labor in road construction, was significantly associated with the stomach cancer group. Of all the stomach cancer cases, 17.9 per cent were exposed to inorganic dust with free silica for 10 or more years and were not included in the significant categories of Nos. 2 and 3 above, against 7.8 per cent of the controls.

5. Forty-two and nine tenths per cent of the study stomach cancer cases and only 10.3 per cent of the controls were included in one of the above three significant occupation categories.

6. The significant occupational findings were definitely independent of the effect of the factors of age, population size of place of residence, smoking, color, and marital status, and were probably also independent of the effect of the factor of socioeconomic status.

7. Polish birth was significantly associated with stomach cancer for the total study group. The study data, plus the reported high death rate from stomach cancer among iron miners in England, suggest that the Polish birth factor and the three occupational factors noted in Nos. 2–4 have independent significance. The data further suggest that the factors of Polish birth and occupational exposure to iron dust in the same individuals exert an additive effect.

8. Certain limitations in the data in this study make it appropriate that the relationships indicated be treated cautiously. However, some of them tend to confirm the work of previous investigators and we believe they all deserve further study, particularly with more widely representative samples of the disease group and the general population.

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NFIP Professional Education Grants

The National Foundation for Infantile Paralysis has prepared a comprehensive announcement of the various awards available for further professional education in fields related to the Foundation's basic program.

September 1, December 1, and March 1 are the deadlines for applications to be considered, respectively, in November, February, and May. Postdoctoral fellowships are available for training in research or academic medicine and in the clinical fields of rehabilitation, orthopedics, the management of poliomyelitis, and preventive medicine. For personnel in medical associate fields fellowships are available in the social sciences, health education, and physical therapy teaching, occupational therapy teaching, and for physical therapy travelship. Fellowships are also provided for short courses in the care of the polio patient.

The announcement, application blanks, and other information from Division of Professional Education, National Foundation for Infantile Paralysis, 301 East 42nd Street, New York 17, N. Y.

Storage of Water Samples for Bacteriologic Examinations

JOSEPH A. McCARTHY

This laboratory study conducted for the Committee on Standard Methods for the Examination of Water and Sewage will be of immediate interest to all concerned with water treatment and other areas of environmental sanitation.

The validity of the results from stored bacterial samples has always been a matter of concern to the bacteriologist, the public health engineer, and now the statistician. This is particularly true in our control laboratories, since the bulk of the samples they receive are necessarily in transit for an indefinite period of time, and since the evidence in regard to coliforms obtained from such samples is to a very great degree used in the sanitary evaluation of water supplies. At the present moment this subject may be particularly pertinent in light of the great interest in the membrane filter field monitors and the proposed holding media.

All the editions of Standard Methods from 1928 to 1945 made the following statement in regard to the collection of bacterial samples: "The time allowed for storage or transportation between the filling of the sample bottle and the beginning of analysis should not be more than six hours for impure water and not more than 12 hours for relatively pure water. During storage the temperature shall be kept between 6° and 10° C."

During the preparation of the tenth edition the committee, in view of the information available to them, felt that these instructions might not be fully realistic. In the time available several short but intensive studies on the effect of storage were carried on under the supervision of the committee, but the evidence was still far from conclusive. When the tenth edition was finally prepared the committee broadened the temperature range to read from 0° to 10° C and any mention of time was omitted in favor of a statement that "all samples should be examined as soon as possible after collection."

The committee set up a program for further experiments on stored water and requested several representative laboratories to carry on these experiments. The present paper presents the results on this study from two central laboratories, those of the New York and the Massachusetts Health Department laboratories. Over a period of a year the New York department laboratory collected nearly 200 samples from a surface water source, of which 69 had determinate coliform values in both initial and in stored samples. The Lawrence Experiment Station collected over 200 samples from Haggetts Pond, which is the raw water supply of the town of Andover, Mass., and of these, 190 gave determinate values. The committee also received a report on nearly 100 samples of ground water from Connecticut, but very few of these had determinate values after storage.

In the case of both New York and

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Massachusetts the samples were collected three or four times a week over a 12-month period so that the effect of seasons, of temperature, and of runoff was included in the samples studied in both laboratories. Both laboratories followed the same procedure. Duplicate five-tube MPN determinations on the initial sample were initiated one-half hour after the time of sampling and the master sample was then divided into two portions. One of these was stored at room temperature and the other in a refrigerator. After 24 hours of storage, duplicate five-tube MPNs were made on each stored sample. All tubes positive after either 24 or 48 hours incubation at 35° C were confirmed in brilliant green bile according to present Standard Methods procedure. From the confirmed results the MPN was calculated for each sample analyzed. Temperatures were recorded at the time of sampling and at the end of the 24-hour storage period. On these same samples determinations were also made after six-hour storage on both room and refrigerator samples but, for the present, the results of this phase of the study are not presented.

Discussion of Results

The data from both laboratories were analyzed by the ratio method. The arithmetic average of the duplicate MPN's on the initial sample, which we have called the master sample, was compared with the average MPN of both stored pairs and the ratio in each case was calculated. From both laboratories these ratios were divided: (1) into summer and winter collection periods, and (2) into groups of increasing initial coliform density. In Massachusetts there were enough samples to divide into four initial coliform groups with about the same numbers in each, but it was possible to divide the results from the New York samples into only three groups according to initial density. From the number of analyses for all the samples and for each seasonal, or MPN grouping, the median ratios and the 95 per cent confidence limits were calculated, and these are presented in Tables 1 and 2. From this method of analysis, the following conclusions have been drawn:

The grouping of samples according to their initial MPN produced several interesting trends. The samples from Haggetts Pond with an initial coliform count of 23 or less gave a median ratio of 0.89 for the room and 1.07 for the refrigerated samples. For the samples with an initial MPN between 24 and 79 the figures were 0.92 and 1.02; with somewhat more pollution—that is, MPN between 80 and 230—the figures were 0.71 and 0.755; and for still more polluted samples—that is, of those with an initial MPN above 230—the median ratios were 0.61 and 0.77. Because of their smaller numbers, the New York samples were divided into only three groups. Those samples with an initial MPN of 23 or less had a median ratio of 1.00 for the room samples and 1.02 for the refrigerated samples. Waters with an initial MPN between 23 and 230 had median ratios of 0.51 and 0.67, and those with an initial MPN greater than 230 gave results of 0.51 and 0.52.

This evidence seems to indicate that 24-hour storage results in both laboratories are somewhat more reliable for samples initially containing a low coliform pollution than with samples of higher numbers. Our analysis does not indicate whether this reduced recovery is associated with high initial density or the initial temperature or both. There appears, however, to be no definite trend associated with the initial temperature alone, although we did not make a detailed investigation. If we assume that the effect of the initial temperature may be disregarded, the explanation may well be that samples of low coliform density

Comparison of the Median Ratios of Stored MPN to Initial MPN

Table 1—Massachusetts Water

	No. of Samples	24 hr. Room Storage MPN to Initial MPN: Median Ratio	24 hr. Room Storage MPN to Initial MPN: 95 Per cent Confidence Limits	24 hr Refrigerator Storage MPN to Initial MPN: Median Ratio	24 hr Refrigerator Storage MPN to Initial MPN: 95 Per cent Confidence Limits
Year	190	0.915	0.77 – 1.00	0.86	0.76 – 0.97
Summer (May–Oct.)	100	0.74	0.63 – 0.92	0.88	0.77 – 1.10
Winter (Nov.–Apr.)	90	1.12	0.85 – 1.20	0.825	0.73 – 0.93
MPN — 23 or less	59	1.07	0.90 – 1.8	0.89	0.63 – 1.3
24–79	53	1.02	0.75 – 1.39	0.92	0.78 – 1.21
80–230	52	0.71	0.53 – 0.92	0.755	0.46 – 0.97
over 230	26	0.61	0.31 – 1.1	0.77	0.50 – 1.0

Table 2—New York Water

Year	69	0.66	0.51 – 0.96	0.74	0.60 – 1.00
Summer (May–Oct.)	32	0.67	0.39 – 1.28	0.78	0.52 – 1.23
Winter (Nov.–Apr.)	37	0.66	0.50 – 0.96	0.67	0.48 – 1.00
MPN — 23 or less	27	1.02	0.65 – 1.49	1.00	0.67 – 1.77
23–230	23	0.51	0.29 – 0.97	0.67	0.42 – 1.22
over 230	19	0.51	0.39 – 0.74	0.52	0.45 – 1.09

tend to include only organisms which are hardy and acclimated and thus better able to survive the storage interval, while in the more polluted samples there were included a number of weak and perhaps less acclimated organisms which more readily succumbed during storage.

As reported in the paper on comparative coliform densities by the membrane filter test,[1] we have found that, with the Haggetts Pond water, samples with initial low coliforms generally also had fewer noncoliform organisms, whereas those exhibiting greater pollution tended to contain noncoliform organisms in a much higher ratio. The greater antagonistic competition for survival present in polluted water and perhaps the greater number of predators we might expect to find in such water might also account for the decrease of coliform organisms in the stored samples which initially had a higher coliform density. A report by Berry[2] on ground waters, which are normally of low coliform content and very apt to contain very small numbers of noncoliforms, appears to substantiate our findings that 24-hour storage of low coliform samples does not materially affect the survival of the coliform bacteria.

For all the Massachusetts samples the ratio in both room and refrigerator samples is only slightly less than 1.00, indicating some loss in recovery of coliforms after the 24 hours. While this statement is true in a numerical sense, the relatively narrow confidence limits for the annual ratios indicate that the loss of coliforms is not significant in any practical sense. The ratios for the New York results for all 69 samples show somewhat greater loss. For the least contaminated waters in New York the ratios are quite similar to those in Massachusetts, but 28 per cent of all the New York samples had coliform densities over 230 as compared to only 12 per cent for the Massachusetts samples and this factor tends to make the general median ratio somewhat low.

A comparison of the ratios for the entire year indicates no demonstrated advantage for refrigeration of samples for the Haggetts Pond water. The same appears to be true for the New York samples. In the Massachusetts samples it appears that a higher ratio of coliform recovery is obtained in the winter from samples stored in the room, while in the summer months a greater ratio of coliform recovery is obtained from refrigerated samples. In the New York results the recovery in the winter samples is the same for both conditions, but in the summer samples a better recovery is obtained in the refrigerated portions.

The degree of reproducibility of the results of the study has been examined by two methods of treatment. First the ratios of all 330 analyses were arrayed in order of magnitude and plotted on log probability paper against the log normal line predicted by the Halvorson-Ziegler [3] model for replicate MPN's. An excellent agreement was found with no overdispersion. Second, the "per cent agreement" between duplicate values was determined and it was found to coincide with that predicted by the Halvorson-Ziegler theory.

The authors are preparing for future presentation a more detailed analysis of the results of the study which it is believed will offer very significant evidence in regard to the reproducibility of the standard MPN test.

Conclusions

The many physical, chemical, and other environmental factors affecting the survival of the coliform group in stored water samples seem to make it improbable that an all-inclusive finding of the effect of storage on samples will ever be established. From this present investigation a general pattern is indicated in regard to waters like these from which these studies have been made.

The indication seems to be that bacterial samples with relatively low coliform densities which have been in shipment up to 24 hours at any reasonable temperature will give results which statistically correlate very well with the degree of pollution existing at the sample point at the time of collection. Samples with higher initial coliform densities, perhaps those with MPN's of 230 or more, may be more likely to exhibit a decrease in coliform content in 24-hour storage.

It might be fairly inferred that samples which normally have no positives in 10 ml portions would not be at all affected by 24 hours of storage. Such waters make up the very great majority of samples coming to Albany and to Lawrence.

It is our belief that the difference in results depending on the initial coliform density deserves further study in the general question of the effect of storage.

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How to Develop and Use Program Policy and Procedure Manuals

A Program Director's Guide

HARVEY L. SHAPIRO, M.P.H., F.A.P.H.A.

This paper explores some of the principles and practices of effective policy and procedure manual development for active and practical use in program planning and in its development and supervision.

If maximum effect and program benefits are to accrue from usually limited staff and available funds, it is essential that each aspect and element of the operation of any program for mothers and children periodically be required to justify its continuation. This is especially true for those program elements that are complex, often troublesome, and where program needs and demands are in a state of change. One can never assume "arrival" at a perfect program process, for what is well suited to the present situation may be completely archaic a year hence. This process of critical objective examination is not easy nor always pleasant, since its basic requirement is that each program objective be clearly defined, preferably in writing, and that each of the methods and processes designed to achieve these objectives be subject to the searching inquiry, "Is what we are doing, and how we are doing it, really effective in accomplishing our stated program objectives?"

The prospect of developing a formal program operating manual appears at first to be a massive undertaking demanding special skills and overwhelming efforts. Be assured that such development requires neither specialized knowledges or skills, nor will it consume more time than traditional, less effective program problem solving methods, if the guides suggested here are used. The "manual" itself comes into reality with the recording of the first written policy or procedure. It stems from an approach in which problems are faced frontally and resolved one at a time in the order of their importance and impact on program operations. It is reassuring to know that one may never expect to achieve a complete manual covering in full all program aspects, except in those rarest of all instances where the program and the needs of the community it serves remain static.

Definitions

For purposes of clarity let "policies" constitute the written framework within which the program goals may be achieved. These include such statements as define the age, geographic limits, diagnoses, or groups eligible for the full range of MCH program services; or those which set standards for qualifications of consultant staff to be retained; or for facilities used in the CC program. They may also provide for exceptions

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where indicated. "Procedures," when properly drawn are complementary to policies in that they are designed to establish the step-by-step process and fix responsibility on specified job incumbents for that specific action which makes reality out of program objectives and policy statements.

Statement of Principles

With this basis it is evident that if policies and their implementing procedures are to be effective they must be made known to the staff concerned in clear, concise form and be accessible to them for ready reference as needed.

Perhaps one of the most compelling reasons for developing a written policy and procedure manual is that when key staff members leave, they are habituated to taking their memories and recollections with them out of the program for all time. The good they have done is fleeting and its solidity as a base for further development of ways of accomplishing program objectives is weakened. Without crystallization of your program achievements in terms of progressive policy and method, massive emergency efforts often must be undertaken to keep the program from backsliding. It can be stated as a principle then, that agreements and understandings about what should be done, when, why, and by whom tend to become vague and ephemeral with passing of time and turnover of staff unless they are formalized. The more complex the policies and processes, the more rapidly they tend to become "lost" or misunderstood unless they are clearly spelled out in black and white. For example, a long standing oral or "gentlemen's agreement" between one CC program director and the chief of surgery at a crippled children's hospital on assumption of responsibility for and reciprocal relations in service to children with orthopedic handicaps was wiped out instantly on the change of personnel in one of the agencies. The records failed to provide substance for its being. It took several months of meetings and effort to achieve a new understanding roughly paralleling the original one. Its existence in writing now can serve as a base for future improvements and will certainly not pass into limbo for reason of the departure of one of the negotiators.

There is a related problem here also: in the absence of formal policy and procedure manuals, certain individuals, clerical, administrative, or professional assume "great-white-father" status, since only they know the processes by which desired program movement is accomplished. These persons are truly "indispensable" until the program policies and procedures which they carry in their heads are committed to paper for the guidance of others who would substitute for or succeed them. The immense value of using written policy and procedure manuals in the orientation and indoctrination of new staff is self-evident. Without them, staff training is essentially partial and spasmodic; learning being gained by process of repetition and rote.

It is more a truism than a principle that staff morale is enhanced to the extent that the exact nature and scope of the responsibility of each person concerned in a given process and the methods for their carrying out are made clear. Such clarity reduces the almost inevitable duplication of effort where the converse is true. From the program director's standpoint repeated oral statements of the same general policy or procedure to staff members is exceedingly wasteful of his valuable time. Surely the mental and social processes involved in arriving at a decision is taxing enough without having to go through that process repeatedly. In the presence of formal program policy and procedural statements such repetition is made redundant. Its answers for all

time the plaintive cry, "How was I supposed to know?" Participation of staff concerned in development of program policies and methods assures not only the benefit of their ideas, but their thoughtful and consistent application of these work tools once they have been agreed upon.

Basic Methodologic Considerations

We now have reviewed certain basic elements which are believed to warrant the effort necessary to develop written program policy and procedure statements. It is appropriate now to consider some of the major principles related to method for accomplishing this objective Certainly those persons involved in a given operation, such as in the preparation for and conduct of a child health conference or plastic clinic are in the best position to state what is presently being done. When given the opportunity, along with those other persons or groups peripherally involved in each such activity, these people generally are in the best position to consider and suggest more appropriate policies attuned to the needs as well as the processes to meet those needs more effectively and fully within existing means. The meaning and effectiveness of all operations will be enhanced by critical and constructive group examination of each of the steps involved in a given process in terms of their necessity and effectiveness in implementing desired objectives. Few will deny that the value of group thinking on problems affecting basic program operations generally outweighs the finite contribution of any one person, however competent. Once this process is completed on any one activity, there is need for some permanent form for recording of results of group discussion.

While seemingly a formidable task, it is not so in reality if a program for development of a policy and procedure manual is thoughtfully planned, using an appropriate adaptation of the following approach: the staff or group concerned might develop a rough listing of specific program problems, carefully and clearly defined and delimited, caused by lack of clarity of policy or process. Examples of such problems might be:

1. Rationale, circumstances, and limitations under which private consultations, office or home visits for crippled children may be arranged for and financed by the CC agency outside the clinic setting.
2. Specific eligibility criteria for admission of patients to pre- and postnatal conferences.
3. Specific priorities for crippled children's case selection for clinic services, hospitalization, and aftercare. (See Exhibit A.)
4. Frequency and content of periodic review of records and progress of crippled children under active care and those who are only registered and have not yet been afforded the full range of services.
5. Responsibilities of related agencies in coordinated programs for caring of children with various handicapping conditions.

Each of these five-sample policy items, when fully stated, establishes only the framework within which each such aspect of the MCH and CC program operates. However, to make the intent of such policy statements a reality, development of detailed related and supporting procedures also must be undertaken. Examples of such related procedures might include:

1. Detailed process for authorizing private consultation, home or office visits, including designation of person or persons responsible for receiving, reviewing, and authorizing requests if in accord with policy; how and by whom the request will be processed through the receipt and processing of the medical report resulting from the special visit and its financial settlement.
2. Detailed process by which maternity patients are referred and admitted to pre- and postnatal conferences; extent of reciprocal relationships with private physicians and hospitals in the process, if any; and record maintenance responsibilities of staff.
3. Detailed process by which cases are ac-

cumulated for consideration by the director, his designee, or case selection committee; the exact process by which cases are selected and care is authorized; the exact process for disposition or later reconsideration of cases not selected for care. (See Exhibit B.)

4. Fixing responsibility on specified personnel for initiating formal review on individual or periodic basis of patients under care; the process to be used in the review and what is done with the results of such review and by whom. Detail the method, process, and responsibilities of staff in a periodic review of all cases known to the agency but who are not under active follow-up. Specify what is done on cases where it is found that there is indication for possible further follow-up.

5. Respective and specific responsibilities for action between the CC agency and a voluntary group concerned with cerebral palsy in bringing the full resources of both agencies to bear on a newly found eligible cerebral palsied child.

In many instances it will be found that while the program policy is clear, on a given matter, its implementation is not. In such cases writing the procedure should certainly be undertaken before time is spent on restating an already known and clear policy. In other cases a program policy statement alone may clarify a confused situation. Still again, a clear policy may require the development of many related procedures to implement it. In effect, there should be no compulsion to develop redundant material.

Suggested Method

Fortunately, the writing of policies and procedures need not be technical, nor should it require use of special format or symbolism. If their purpose is to clarify and not confuse, bring order out of chaos and serve as a handy reference document, it should require minimal training of staff concerned in their use and interpretation. I would like to offer a few do-it-yourself suggestions for development of a policy and procedures writing program.

1. Use a big blackboard where policy and procedural action proposals are visible immediately to all participants, and designate one of the participants to act as recorder for all blackboard entries. The recorder serves as group secretary, freeing the discussion leader for the task of stimulating and channeling constructive group thinking toward achievement of specific group objectives.

2. Record on the blackboard a rough listing of problems needing policy or procedural development as suggested by the staff. It is not possible to overstress here the importance of developing and delimiting semantically clear problem statements, for such clear definition in itself often constitutes a giant step in the direction of problem resolution. As a screening device, this effort may be undertaken at this point in the process; but certainly it must be undertaken in every case before attempting to write a resolving policy or procedure.

3. Select the two or three most pressing problems from the list with staff concensus, being sure to preserve the rest as your basis for future policy and procedural development. To the residue will be added, of course, other problems which had not been suggested initially but brought into focus by your actual policy and procedure writing sessions. The recorder should keep this listing up to date.

4. Write policies and procedures using adaptation of format shown in Exhibits A and B as indicated, with fullest participation in the process by the staff concerned. When each policy or procedure is completed, the group should verify that the result of the work has fulfilled the precisely stated purpose in each instance or has resolved its subject problem as fully as possible.

A few footnotes here are important, namely, the selection of the group leader for self-evident reasons and the importance of his restricting tangential movement in the process. In the latter

instance, related problems may be added to the rough problem listing suggested earlier for later resolution. Where it is not possible to continue without resolution of a related problem, start a session to resolve it first and then return to and complete work on the initial problem. In this process the amount of staff concentration required is so intense that extended periods of work may be unproductive. It is suggested that such sessions might be regularly scheduled once or at most twice a week not to exceed two hours in length. Policy and procedure format might be adapted from that shown in Exhibits A and B.

5. On completion of policy or procedural drafts resulting from each session, prepare and circulate a copy to each participant for review and return to next session for discussion of final modifications and adoption recommendations. Ordinarily it is preferable that these reviews be taken up at the outset of each session and before undertaking new policy or procedural development. Each recommendation for adoption should include a future date, e.g., one year, by which time the subject policy or procedure must be reevaluated in terms of effectiveness, modified as needed, and extended. Interim modifications as may be necessary should be authorized only by the program chief or his designee.

6. Once adopted, each policy and procedure for the program may be duplicated in final form; prepared for loose-leaf arrangement; and copies distributed to all participants with copies placed in predesignated, strategically located "manuals" readily available to the staff.

7. When a sufficient number of policies and procedures have been developed so that the finding of specific ones tends to become burdensome, their indexing and arrangement by subject matter groupings may be undertaken.

One of the principles urged here is based on recognition that the job of policy and procedural development is never completed in a program of any complexity or size. Therefore, a word of caution is expressed against developing a manual on an a priori organizational basis without regard to problem areas. Such development certainly can cause staff interest to wane. Instead, if real day-to-day problems are faced frontally as suggested here, an organizational pattern directly attuned to the needs and problems of the program concerned surely will develop.

Use in Projective Program Planning

We now have reviewed a few of the basic considerations, principles, and methods in the development of program policy and procedure manuals for existing programs. Perhaps their most important and meaningful use is in the process of planning for new programs or in the complete reorganization of existing ones. It is in this area that the writing of projected policies and procedures can be an exceedingly valuable tool to the program director and his staff in developing a guide through the often frightening wilderness of creative program planning.

To have a good idea in program planning does not always equate at its being easily workable, as many have learned. A key problem is the visualization of the road with its obstacles, pitfalls, and straightaways leading to successful launching of new or modifications of existing programs. No better way has been found to this time than detailed written narration of each projected plan policy. Visualization can be achieved better by projecting, in as much written detail as feasible, the procedures which appear best to implement the plan and its projected policies. This process highlights many of the problems that are foreseeable and sug-

gests additional preparations which may be undertaken to pave the way to successful program change. They also serve as documents around which constructive discussion and agreement can center both within and without the agency in developing the most effective program possible within existing means and available resources.

Another device found helpful by effective program planners is a procedure covering the projected steps to be taken in launching a new program or project to the point of its full operation. Briefly, what is suggested here is a procedure detailing the steps planned to be taken in the initiation of a new project or change. To each step or action projected may also be appended a flexible time schedule.

Even with the foresighted and realistic planning suggested, there will be need for considerable flexibility to provide for unanticipated detours. This process is designed to reduce such detours to a minimum and provide assurance to the program director and his staff that movement in the direction of program objectives will have been fully considered in advance rather than its becoming a gerrymandered, opportunistic patch-quilt of program where execution of the plan means its literal execution to a rapid demise.

Conclusion

Program operation can be made more effective if its major policies and procedures are subject to periodic, intensive review and modification by the program staff concerned. Changes in program operation can be effected with minimal upset, maximal understanding, and staff cooperation if the framework of program policy and procedure is developed in written form along the lines suggested.

The almost paralyzing spectre of massiveness of approach to development and use of policy and procedure manuals as a basic program planning tool is minimized when the approach is directed toward resolution of specific pressing problems in the day-to-day operation of the program.

To neglect the use of this valuable tool in program management invites program calcification; repeated struggles with similar problems; misuse of personnel; encouragement of the "indispensable" staff member who knows all and tells nothing, as well as the opportunistic and often disproportionate development of program elements.

Use of these devices, while no painless panacea for program problems, offers to the program director and his staff a method for dealing with and resolving program difficulties with reasonable assurance of having arrived at these resolutions as thoughtfully and thoroughly as circumstances permit. The essence of this method is that of democratic participation along with the benefit of all its related values in assuring understanding and support of needed program development and action.

There is little question that the values inherent in this process of periodic objective examination of program goals, policies, and methods are sufficient to warrant their being undertaken, even if no written record were to be made. However, to neglect the final recording phase poses the continual threat of loss of these hard won values. Moreover, the use of this approach applied to projective health program planning affords the vehicle for carrying creative, imaginative, and resourceful program planning and direction along the most direct possible route to desired objectives.

Development and modification of an effectively operating policy and procedure manual of course must be a continuous process if it is to meet changing conditions, needs, and problems. No program aspect should be immune from the searching light of inquiry resulting

in modification required in this process. It is only thus that program operations directed toward provision of an ever-improving quality of service for the mothers and children with whom you are concerned can be continually refined and made more effective in meeting clear program needs.

Exhibit A

AGENCY NAME
CASE SELECTION
POLICY

Because of the need to assure continuity of care to crippled children for whom this bureau is committed to a program of active followup, the following policy is established:

A Case-Selection Committee is hereby established composed of the bureau chief, pediatrician, medical social consultant, nursing consultant, and administrative assistant. Other staff consultants shall participate as needed. This committee may be chaired by the chief or pediatrician only.

This committee shall convene at least once a month and recommend that care be authorized for specific children in need within a flexibly prorated fund allotment.

Priorities for case selection are:

1. Urgent cases based on medical or social need. Emergent cases to be authorized when appropriate as they arise by bureau chief.
2. Cases on whom definite commitments have been made.
3. Cases having had one stage of medical care and needing additional services for purpose of further improving function.
4. Cases having had previous initial stage or stages of surgical or medical care and requiring further services for completion of medical treatment plan.
5. Cases having had no previous medical care and requiring services for improved function.
6. Cases having had no previous medical care but for whom care can be deferred indefinitely without harm.
7. All others.

The implementation of this policy statement is covered in the related procedure. Special requests for provision of bureau sponsored services to children will no longer be considered outside this policy application, except in case of bona fide emergency.

(signature)

Approved _____
Chief, Bureau of MCH & CC
(date)

Effective _____

Exhibit B

AGENCY NAME
CASE SELECTION
PROCEDURE

Purpose: To outline the method by which crippled children are selected for a program of recommended medical services under agency auspices.

Action	Responsible	Special Note
1. Review all pending crippled children records to select those children for whom a special program of medical care is proposed.	Professional staff members	See also action No. 8
2. Prepare a brief summary for each case considered ready to include following data: A. Name of patient and age B. Address C. Diagnoses D. Recommended Rx and estimated cost E. Recommended priority	Professional staff members concerned	Use special summary form See policy

(Continued)

Exhibit B—Continued

Action	Responsible	Special Note
F. Statement supporting recommendation		
G. Current date and signature		
3. Route forms to medical secretary and return case record to file.	Staff member concerned	
4. Pull complete case record on each patient and attach completed special summary form (see Action No. 2) to inside cover of each chart.	Medical secretary	To be done on first work Monday in each month
5. Give charts and forms to chief of bureau for preliminary review and routing to Case Selection Committee.	Medical secretary	
6. At meeting of Case Selection Committee:		Meet Wednesday after first work Monday each month
A. Present case and rationale	Staff member	
B. Establish priority	Case selection committee	
C. State funds available for special services current month	Bureau chief	In consultation with administrative assistant
D. Discuss and select cases for services within fund sufficiency based on priority assignment	Case selection committee	
7. Process authorized cases for service as recommended by committee.	Staff concerned	Use procedure, "Service Authorization"
8. Retain special summary forms on cases not selected for service.	Medical secretary	Process with cases for next month
9. Repeat procedure monthly.	Staff concerned	

(signature)

Approved _____

Chief, Bureau of MCH & CC

(date)

Effective _____

A Connecticut State Poison Information Center

The Connecticut State Health Department has been authorized by the Legislature to establish a poison information center. It will collect information from manufacturers and will exchange information with other centers through the National Clearinghouse of the Public Health Service, and thus advise physicians when treatment is necessary and what the treatment should be. There are an estimated 1,800 to 2,700 accidental poisoning victims in Connecticut annually.

Rabies in Bats in Florida

NATHAN J. SCHNEIDER, Ph.D.; JAMES E. SCATTERDAY, D.V.M.; ARTHUR L. LEWIS, D.V.M.; WILLIAM L. JENNINGS, M.Sc.; HOMER D. VENTERS, B.S.; and ALBERT V. HARDY, M.D., F.A.P.H.A.

Is bat rabies a serious public health hazard? The final answer is yet to be made. But this state-wide study is a fine start in the direction of that answer. A suggestive correlation between bat rabies isolations and (other) animal rabies incidence is reported.

The first reported laboratory isolation of rabies virus from an insectivorous bat was made by Venters, et al.,[1] in Florida in June, 1953. This was the first recognition of rabies in bats in the United States. The initially detected infection was in a Dasypterus floridanus (Florida yellow bat) which had bitten a child. Several months later, Witte, et al.,[2] reported the isolation of rabies virus from an unidentified but presumably insectivorous bat in Pennsylvania. Subsequently, 13 additional states, Georgia, Alabama, Louisiana, Texas, Oklahoma, New Mexico, California, Utah, Montana, Minnesota, Ohio, New York, and Delaware have reported the identification of rabies in bats.[3]

The preliminary studies of Venters, et al.,[1] and Scatterday, et al.,[4] of apparently normal noncolonial bats shot in flight, revealed rabies infection in four of 30 Florida yellow and in one of 39 Lasiurus seminolus (seminole) bats taken in the vicinity of the ranch where the first rabies-positive bat was found. It was apparent that bat rabies had possible public health implications; however, the nature and extent of the problem was obscure. The Bureau of Laboratories and the Division of Veterinary Public Health of the Florida State Board of Health have studied this matter for the past two and one-half years.

Materials and Methods

Collection of Bats—Most of the free-living bats obtained for examination were shot in flight. "Bat shoots" were organized and conducted with the assistance of field technical personnel from the Florida Game and Fresh Water Fish Commission. The sportsmen participating stationed themselves in areas where bats commonly were seen in flight. As the rapidly flying bats came within range, there was the attempt to shoot them. Abnormal flight characteristics, suggesting possibly ill animals, were not evident. Bats obtained by this method of collection included the yellow, the Seminole, the Evening (Nycticeus humeralis), and the Georgian (Pipistrellus subflavus). Killed bats were shipped refrigerated to the laboratory for study.

In Florida there are commercial plants which process Spanish moss for use as filler in upholstered furniture. Personnel

Dr. Schneider is assistant director and Dr. Hardy is director, Bureau of Laboratories; Dr. Scatterday is public health veterinarian and Dr. Lewis is veterinarian-in-charge, Division of Veterinary Bacteriology; Mr. Jennings is biologist, State Board of Health, Jacksonville, Fla. Mr. Venters is bacteriologist-in-charge, Tampa Regional Laboratory, State Board of Health, Tampa, Fla.

This paper was presented before the Laboratory Section of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 12, 1956.

This investigation was supported in part by a research grant PHS E-818 from the National Institutes of Health, Public Health Service.

working in these plants had reported seeing live bats nestling in the moss and were encouraged by a small bounty to capture and ship them alive to the laboratory. This source yielded primarily the yellow and Seminole varieties, also a few Georgian and Evening bats. This was our only source of live free-living bats.

Colonial bats were collected from caves and attics of old buildings. Bats habitually hang in clusters from the ceilings of the caves, or lay concealed in groups behind the walls and under the eaves of buildings. Samples of these were collected on a random basis. Those taken in this way included the Mississippi myotis (Myotis austroriparius), gray myotis (Myotis grisescens), Georgian, and Florida free-tailed (Tadarida cynocephala) bats.

Finally, bats obtained "by donation" were those which had attacked man or animals or had attracted attention by their unusual activities, such as daylight flight or lying semiprostrate near human habitation. These bats, totaling 35, were delivered to the state laboratories by various individuals requesting that they be examined for rabies.

Collection of Serums—Random samples of apparently normal colonial (primarily Tadarida) bats were examined for neutralizing antibodies. Live bats were bled from the jugular vein or by cardiac puncture and the blood from five bats pooled and treated as one specimen. The serum was separated from each pool and stored in the deep freeze (—5°C) until tested.

Bat Identifications—Initially, the bats were shipped, after removal of brain material, to Colin Campbell Sanborn, curator of mammals, Chicago Museum of Natural History. A small number of bats were identified by Dr. H. B. Sherman, formerly professor of biology, University of Florida. However, the major portion were identified by W. L. Jennings, the biologist associated with this study. External characteristics were used as the basis for classification.

Aging of Bats—Bats were separated into age classifications by two different methods, sexual maturity as manifest by the examination of sex organs and tooth wear as described by Andersen.[5] These examinations were not done in the early months of the study.

Examinations for Rabies—Bat brains and salivary glands were removed aseptically and stored individually in the deep freeze (− 5° C) until tested. Prior to freezing a portion of each brain was used to prepare multiple impression smears. Slides were stained by Sellers' technic [6] and examined microscopically for the presence of Negri bodies. Brains exhibiting inclusion bodies by smear were tested individually in mice. If no evidence of inclusion bodies was found, pools of brains from three bats were tested in mice. When infection resulted from the inoculation of a pooled specimen each individual specimen in the pool was reexamined. Mouse inoculations were performed according to the standard technics [7] inoculating 0.03 ml of a 20 per cent suspension intracerebrally into four (for individual bat brain specimens) or five (for pooled bat brain specimens) test animals. Mice were observed daily for a period of 40 days (later this was reduced to 30 days), after which they were sacrificed, smear impressions prepared, and examined for Negri bodies. Mice dying during the period of observation were autopsied and the brains examined for Negri bodies. All suspect positive specimens were passed in series three or more times in mice and the isolates confirmed serologically by neutralization tests against known positive rabies antisera. Neutralization tests were performed as described in WHO Bulletin.[8] Salivary glands were examined by mouse inoculation as pooled or individual specimens as described above.

Serum Neutralization Tests—These

Table 1—Rabies Infection in 5,503 Bats by Species

Species	Examined	Positive for Rabies	
		No.	Per cent
Colonial			
Myotis austroriparius	1,998	1	0.05
Myotis grisescens	281	1	0.4
Pipistrellus subflavus	327	2	0.6
Nycticeius humeralis	233	0	0.0
Tadarida cynocephala	1,129	4	0.4
Others *	16	0	0.0
Total	3,984	8	0.2
Free-Living			
Lasiurus borealis	154	3	1.9
Lasiurus seminolus	785	5	0.6
Dasypterus floridanus	579	15	2.6
Other †	1	0	0.0
Total	1,519	23	1.5

* Myotis sodalis, Eptesicus fuscus, Eumops glaucinus.
† Lasiurus cinereus.

were performed by the technics described by Burns, et al.[9] Standard CVS fixed-rabies virus (guinea pig brain) furnished by the Virus and Rickettsial Laboratory, Public Health Service, Montgomery, Ala., was used.

Results

Findings of rabies in bats by species are summarized in Table 1. During the study 5,503 bats of 12 species were collected; eight species were taken commonly and four rarely. Biologic records indicate that only three additional species of bats have been found in Florida. Of the eight commonly occurring species, rabies infection has been found in seven. Among the colonial species (Myotis austrori parius, Myotis grisescens, Pipistrellus subflavus, and Tadarida cynocephala), the proportion infected varied from 0.05 per cent to 0.6 per cent, totaling for the group 0.2 per cent. One additional colonial species, Nycticeius humeralis, was found commonly but yielded no rabid bats. Of the free-living (Dasypterus floridanus, Lasiurus seminolus, and Lasiurus borealis) the proportion infected varied from 0.6 per cent to 2.6 per cent, totaling for the group 1.5 per cent.

Table 2 shows the number of infected bats discovered annually for 1953 through 1956. The consistently higher infection rate for free-living as compared with the colonial bats is apparent. Rates from year to year are relatively uniform. These findings are based on the totals of all bats collected.

Referring to Table 3 it is observed that rabies infection rates vary with the methods used for collection and by the roosting habits of the bats. Six colonial bats of 3,519 obtained from colony collections were found infected. No free-living bats were obtained from colonies. Of the bats obtained from shoots, two

Table 2—Proved Bat Rabies in Florida by Year, 1953–1956

Year	Colonial			Free-Living		
		Positive for Rabies			Positive for Rabies	
	Examined	No.	Per cent	Examined	No.	Per cent
1953	338	1	0.3	222	7	3.2
1954	321	0	0.0	414	3	0.7
1955	2,114	4	0.2	401	5	1.2
1956	1,211	3	0.3	482	8	1.7
Total	3,984	8	0.2	1,519	23	1.5

of 405 colonials (0.5 per cent), were infected and 13 of 1,245 free-living (1.1 per cent) were infected. This variation in the proportion of infected colonial and free-living bats obtained from shoots is even more noteworthy since two of 124 Pipistrellus species obtained from shoots were infected, while there were no infections among 203 Pipistrellus collected from colonies. The only infected bats obtained from moss were those of the free-living species; however, three of the five found infected were suckling bats which represented one litter. It is significant that 25.0 per cent of the 20 free-living species submitted as "donations" to the laboratory for diagnostic rabies tests were found infected with rabies. There were 12 human exposures and four (33.3 per cent) of these bats were found positive for rabies.

Brain material of all bats was examined by microscopic smear and mouse inoculations. Of the 31 positive bats, eight were colonial (including Pipistrellus) and 23 free-living. Microscopic findings differed significantly between the two types in that none of the colonial species exhibited Negri bodies in brain smears; in contrast, 15 of the 23 free-living bats were Negri-positive. Fourteen of 15 positive Dasypterus exhibited Negri bodies; in contrast, only one of the seven Lasiurus species was positive microscopically. All positive

Table 3—Infection Rate by Method of Collection and Roosting Habits

Method of Collection	Colonial Species			Free-Living Species		
		Positive for Rabies			Positive for Rabies	
	Examined	No.	Per cent	Examined	No.	Per cent
Colonies	3,519	6	0.2	0	0	0.0
"Shoots"	405	2	0.5	1,245	13	1.1
Moss	45	0	0.0	254	5	2.0
"Donations" *	15	0	0.0	20	5 †	25.0
Total	3,984	8	0.2	1,519	23	1.5

* Bats which attracted attention by attacks on human beings or animals or were lying semiprostrate on the ground.
† Human exposure involved in four of these rabid bats.

Table 4—Rabies in Bats by Age * Classification

Age Classification	Colonial			Free-Living		
		Positive for Rabies			Positive for Rabies	
	Examined	No.	Per cent	Examined	No.	Per cent
First year of life	980	2	0.2	316	6	1.9
Over one year	2,395	2	0.1	534	7	1.3
Total	3,375 *	4	0.1	850 *	13	1.5

* Does not include 609 colonial and 669 free-living bats which were collected early in the study and were not available for classification by age.

bats yielded virus from brain material by mouse inoculation except two suckling Dasypterus bats.

Salivary glands of 16 rabid bats were examined, 13 of which yielded rabies virus. In addition, studies were made of salivary glands from 112 colonial and 150 free-living brain negative bats. These were found to be negative by mouse inoculation procedures.

The incubation periods in the mice of isolates from 21 brains in which data are available, averaged 14 days, ranging from five to 25, with a standard deviation of 4.6 days. Similarly, the average incubation period of isolates from 13 salivary glands was 17 days, ranging from nine to 21, with a standard deviation of 3.8 days.

Serum neutralization tests on 49 pools of five apparently normal bats, predominantly Tadarida, yielded no evidence of rabies antibodies. Collections were made over a period of one year from colonies which had yielded rabid bats as determined by virus isolation procedures. These results are in marked contrast to the findings reported by Burns, et al.[9, 10] They found antibodies for fixed rabies virus among pools of serums bled from groups of Tadarida mexicana bats collected in Texas.

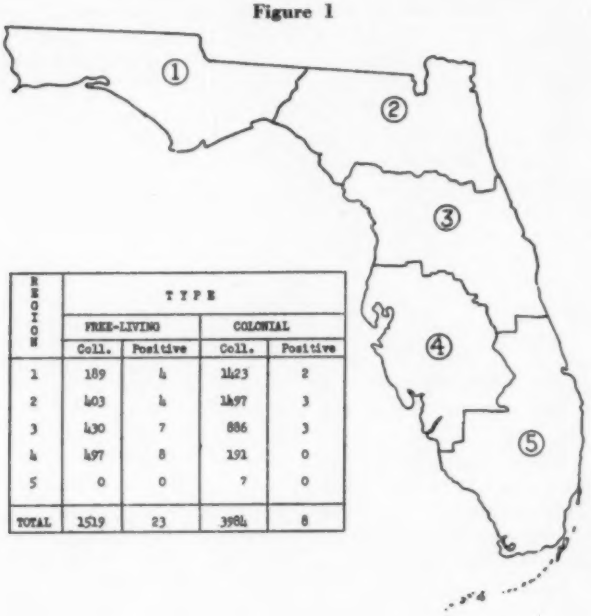
There were no statistically significant differences in the distribution of rabies by sex or by age (Tables 4 and 5). For both colonial and free-living bats, however the infection rate of males was higher than for females, and that of young animals higher than for the older ones. Two isolated observations indi-

Table 5—Rabies in Bats by Sex *

Sex	Colonial			Free-Living		
		Positive for Rabies			Positive for Rabies	
	Examined	No.	Per cent	Examined	No.	Per cent
Male	1,327	4	0.3	421	7	1.7
Female	2,204	3	0.1	644	9	1.4
Total	3,531 *	7	0.2	1,065 *	16	1.5

* 453 colonial and 454 free-living bats which were collected early in the study not available for classification by sex.

Figure 1



REGION	TYPE			
	FREE-LIVING		COLONIAL	
	Coll.	Positive	Coll.	Positive
1	189	4	1423	2
2	403	4	1497	3
3	430	7	886	3
4	497	8	191	0
5	0	0	7	0
TOTAL	1519	23	3984	8

cate that infection of free-living bats may take place at a very young age. One mother with a brood of three bats was captured. After being held in captivity for several days, one of the sucklings died and was proved positive for rabies by the demonstration of Negri bodies and the isolation of the virus. The other two littermates exhibited inclusion bodies suggestive of rabies, but failed to yield rabies virus by mouse inoculation tests. The mother, neither on brain examination by microscopic smear and mouse inoculation nor by serology gave evidence of rabies. In a second similar instance, while a mother and litter were under observation, one of the young died at approximately three weeks of age. It was examined and found positive for rabies. In these instances infection must have occurred very shortly after birth.

The findings by season are influenced by the availability of bats for examination. Although rabies was demonstrated throughout the year, a higher proportion of the bats collected during the summer months were positive.

There is shown in Figure 1 the geographic distribution of bat rabies in Florida. In the most southerly tip of the peninsula very few bats could be found and no positives were detected. However, throughout the rest of the state, wherever reasonably large samples were taken, there was proved rabies infection in bats.

Comment

The evidence permits the opinion that rabies infection in Florida bats is well established and widely disseminated especially in the free-living species. There is the paradoxical situation that the lowest infection rate is in bats living in intimate contact in colonies where it would be assumed that the spread of

infection would be facilitated; in contrast, the highest infection rate was in the free-living bats dispersed in nature.

The observation that 14 per cent of the 35 bats obtained as the result of some apparent abnormality were infected with rabies is of high practical significance. Twelve of these had bitten human beings and four (33.3 per cent) were found positive for rabies. Hence the public health implications of bat bites is clearly apparent. Unless further information is obtained to the contrary, antirabies treatment appears indicated for all persons or animals bitten by bats. One cannot rule out the need for treatment on the basis of brain smear examinations alone, since almost 50 per cent of the infected bats had no detectable Negri bodies by this procedure.

Early in the study attempts were made to demonstrate contact between migrating bats from Florida and known vectors in other areas such as the vampire [11] and Jamaican fruit bats.[12] All data gathered were negative. Careful observers indicated quite definitely that bats are not found on the Florida Keys, a logical link in an interisland route of migration. Further, all species were found in the state during the winter. The reduced numbers seen during cooler months in Florida may be explained by the known reduction in activity at reduced temperatures and to hibernation at lower temperatures.

Throughout the study there has been suggestive evidence of temporal and geographic correlation between the finding of rabid bats and the appearance of sporadic, nonspreading rabies in raccoons and other wild carnivores. This evidence suggests the presence of some highly mobile rabies vector unaffected by rivers, swamps, and other natural barriers. Actual infection of a wildlife species by a bat in nature was not observed during the study, though some suggestive evidence was secured. One rabid bat was recovered after it fell into a yard and bit a dog previously immunized against rabies. One not found infected was taken from a house cat while still alive.

The role of the bat as a reservoir for rabies in wildlife and domestic animals may be presumed on the basis of present evidence, though it has not been proved. The possibility of other wildlife serving as an alternate reservoir for this infection is not excluded. However, it may be concluded as a guide to public health practice that insectivorous bats do represent a potential source of rabies virus for the infection of wildlife and even domestic animals and man.

ACKNOWLEDGMENT—The authors wish to acknowledge the able assistance of Edith Jones who as laboratory technician carried competently the heavy volume of laboratory technical work required. The valuable contribution of others as specified in the body of the paper, particularly the personnel of the Communicable Disease Center Virus and Rickettsial Laboratory, Public Health Service, Montgomery, Ala., and the Game and Fresh Water Fish Commission of the State of Florida are acknowledged with appreciation.

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Staphylococcal Infections in Newborn Infants

II. Report of 19 Epidemics Caused by an Identical Strain of Staphylococcus pyogenes

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Several epidemics of staphylococcal infections acquired in hospital nurseries for newborns are reported. The continuing hazard is pointed out as are appropriate preventive measures.

Until several years ago it was practically impossible to carry out epidemiologic studies of illness caused by Staphylococcus pyogenes. Pathogenic strains could be readily identified by coagulase and hemolysin production, but these characteristics are not sufficient to separate single strains from the many capable of causing pyogenic infections. At the present time it is possible to characterize single strains of S. pyogenes by the procedure of bacteriophage typing, and when this technic is combined with determination of patterns of sensitivities to various antibiotics, strains can be precisely identified.

These refinements in the characterization of S. pyogenes have encouraged epidemiologic investigations of previously unsolved problems in epidemic staphylococcal infections. It is the purpose of this communication to describe the study of such an epidemic which began in the maternity unit of a general hospital and, further, to report the subsequent finding that the strain of S. pyogenes implicated in that epidemic has also been found responsible for more than 40 similar epidemics in the United States, Canada, Australia, New Zealand, and Germany.

During the late summer and early fall of 1954, an epidemic of staphylococcal infections occurred in the newborn nurseries of the Ohio State University Hospital.[1] A pustular skin lesion was the principal manifestation of the infection among the infants. Breast abscesses in nursing mothers and, in some cases, in the infants themselves, and a few instances of generalized infections in infants were observed.

All the staphylococci isolated from lesions among the infants, and from breast abscesses of nursing mothers, had identical patterns of antibiotic sensitivity and bacteriophage type. The strain involved in the epidemic produces coagulase and alpha hemolysin, is sensitive to erythromycin, bacitracin, neomycin, chloramphenicol, novobiocin and oleandomycin and is resistant to penicillin, streptomycin, and the tetracyclines (Table 1). The strain is lysed by bacteriophages 42B, 47C, 44A, 52, 80, and 81.

In an effort to control the epidemic, nursery procedures were reevaluated and were considered to be satisfactory. Isolation of infants immediately after clinical signs of infection appeared proved ineffective in controlling the epidemic. The "dry" skin care, recommended by the American Academy of Pediatrics,[2] was replaced by daily bathing of the infants with a liquid detergent containing 3 per cent hexachlorophene. Neither isolation nor "hexachlorophene bathing" prevented the nasal coloniza-

Table 1—Physiologic Characteristics of Staphylococcus pyogenes Causing Epidemics Among Infants and Nursing Mothers

Coagulase Reaction	Positive
Alpha Hemolysin	3,200 HU_{50}/ml
Antibiotic Sensitivity	
Penicillin	Resistant (250 Units/ml)
Chlortetracycline	Resistant (20 MCG/ml)
Streptomycin	Resistant (10 MCG/ml)
Bacitracin	Sensitive
Chloramphenicol	Sensitive
Erythromycin	Sensitive
Carbomycin	Sensitive
Neomycin	Sensitive
Novobiocin	Sensitive
Oleandomycin	Sensitive
Phage Type	42B/47C/44A/52/80/81

tion of apparently well infants in the nursery by the virulent strain, and infections continued to develop among the infants and mothers after discharge from the hospital, and subsequently even among household contacts.

Exhaustive investigation of personnel who came into contact with the infants on the maternity service revealed that of 170 individuals only seven, all of whom were nurses assigned to the nurseries, were carriers of staphylococci with the characteristic antibiotic resistance and bacteriophage type. Of the seven nurses who were nasal carriers, only one proved to be a permanent carrier, who continued to harbor the strain after contact with colonized infants was interrupted.

After removal of all carriers from contact with infants failed to terminate the epidemic, it was decided to institute prophylactic medication to prevent nasal colonization of the infants. Since the epidemic strain of S. pyogenes was sensitive to erythromycin, this drug was administered orally to all infants beginning immediately after birth (20 mg/lb in six divided doses/day) for one week. Nasal colonization of infants was immediately controlled, and the development of infection after discharge from the hospital ceased. This strain of S. pyogenes did not develop resistance to erythromycin as a result of this regimen, nor was there any unfavorable reaction to the medication among more than 400 infants so treated. Prophylactic medication was discontinued one month after the epidemic strain disappeared from the nurseries.

In June, 1955, an outbreak of pyodermia occurred in the newborn nursery of a hospital in southern Ohio. Although the epidemic in Columbus had been considered to be an isolated occurrence, we were interested in knowing whether other epidemics could be controlled as ours had been by prophylactic medication with an appropriate antibiotic. Therefore, cultures of affected infants, well infants, and hospital personnel were obtained from this epidemic. The etiologic agent proved to be a strain of staphylococcus with the same physiologic characteristics as the "epidemic strain" encountered in Columbus. Whereas approximately 50 per cent of infants born on the maternity service developed pyodermia at the height of the Columbus epidemic, and 10 per cent of all mothers developed breast abscesses, the incidence in this second epidemic was much lower, 3.5 per cent of newborn infants developing pyodermia and approximately 1 per cent of mothers having breast abscesses. It was notable that in both epidemics some newborn infants developed breast abscesses, a unique finding in our previous

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experience. As in Columbus this second epidemic was promptly controlled by the prophylactic administration of erythromycin to all newborn infants, and the carrier state in infants and nursing personnel disappeared.

Since June, 1955, cultures of S. pyogenes with identical antibiotic sensitivity and bacteriophage type as those referred to above have been obtained from 15 other hospitals in various parts of the United States and Canada. In two more epidemics, the responsible strain was the same phage type but was resistant to erythromycin (Figure 1).

Recently, through an exchange of cultures with P. M. Rountree in Australia and E. T. Bynoe in Canada it has been possible to establish beyond doubt that the epidemics in those countries [3, 4] were caused by a strain identical to the "epidemic strain" the authors have been studying in this country. These authors have referred to S. pyogenes type 80 or 81 which in our laboratory has been phage-typed as 42B/47C/44A/52/80/81. This information brings out the world-wide distribution of this particular strain of S. pyogenes in the past two years and its extreme pathogenicity for newborn infants (Figure 2).

The severity of the individual outbreak has been variable, with infant morbidity as high as 50 per cent in five widely separated localities in California, New York, Ohio, and Washington and as low as 1 per cent in others. Breast abscesses in nursing mothers have occurred in virtually every epidemic, and in some the incidence has been as high as the 10 per cent of all postpartum women (approximately 30 per cent of all mothers who nursed their babies) observed in Columbus. The striking occurrence of breast abscesses in newborn infants as a complication of pyodermia in these epidemics has been observed repeatedly. The typical mani-

LEGEND

● Epidemic Infections Due to 42B/47C/44A/52/80/81
○ Sporadic Infections Due to 42B/47C/44A/52/80/81 (Epidemic Not Verified)

Figure 1—Confirmed Occurrence of "Epidemic Strain" in the United States and Canada, October, 1954–October, 1956.

Figure 2—Reported World-Wide Occurrence of Outbreaks Due to "Epidemic Strain" 1954–1956.

festation of infection among infants has been pyodermia, the pustular blebs occurring chiefly in the diaper area and folds of the neck and axilla. Occasional occurrence of severe infection in the infants with some fatalities (pneumonia, septicemia) has been reported from many of the outbreaks.[1, 3, 5]

The delayed appearance of infection among infants and nursing mothers in the Columbus epidemic was impressive. Subsequently, in other epidemics due to this strain of S. pyogenes, few infants and mothers had signs of infection while in the hospital. Evidence that infections were being acquired in the nurseries came from widespread staphylococcal infections which developed after discharge from the hospital. The infant who has been discharged from the hospital apparently well, but who is actually a nasal carrier of pathogenic staphylococci, is, in our experience, in what might be considered the prodromal stage of staphylococcal infection (Table 2). This circumstance has considerable significance from a public health standpoint. Although the organism is initially acquired by infants in the hospital nursery, it is quite likely that the hospital staff may for some time be unaware that an epidemic situation exists. Moreover, practicing physicians and public health nurses, seeing such staphylococcal infections as pyodermia, breast abscess in infants or mothers, osteomyelitis, pneumonia or septicemia in the community might reasonably believe the infections were acquired after discharge from the hospital and fail to suspect the nursery as the source of infection.

Investigation and control of these currently increasing epidemics depend

Table 2—Time of Appearance of Infection (Pyodermia)

Infants Cultured in Nursery	74
Nasal Cultures Positive for "Epidemic Strain"	24
Cases of Clinical Illness:	
in hospital	1
after discharge	16

on improved communication and cooperative action among practitioners, public health personnel, and hospital administrators. The most important step is to make staphylococcal infections in very young infants and breast abscesses in nursing mothers reportable diseases. The health officer would thus know when the incidence of such infections is increasing and would be able to warn hospital administrators about suspected nursery infections.

Nursery-acquired infections due to this "epidemic" strain of S. pyogenes have caused fatalities due to pneumonia in a number of epidemics.[1, 3, 5] In other instances, where the initial infection was no more than pustular skin lesions, the organism has had a persistent, extensive effect on the whole family. The authors studied 20 families 18 months after a newborn infant, suffering from pyodermia acquired in an epidemic due to the 42B/47C/44A/52/80/81 phage type, was brought home from the hospital. In nine of the 20 families, one or more members of the household still harbored the pathogenic strain in the nasopharynx and in virtually every instance there was a history of repeated staphylococcal infections in various members of the family during the entire period of 18 months. A typical history was obtained from a family in which the newborn infant in October, 1954, had only two or three pustules and recovered promptly. An older sister developed the first of a long series of furuncles soon after the baby came from the hospital. The father took care of the older child for the most part, until he developed an infected pilonidal sinus which eventually required surgical excision. The "epidemic" strain was still present in the nasopharynx of two children in this family 18 months after the first infection. This organism has a remarkable tendency to cause pyodermia and more serious systemic infection in infants, as well as mastitis in mothers who nurse infected infants. However, older children and adults are susceptible to staphylococcal infections from the same organism.

Summary

Since 1954 there has been an increasing incidence throughout the world of epidemic infections in hospital newborn nurseries, the etiologic agent in the great majority of these epidemics being a penicillin-resistant S. pyogenes, phage type 42B/47C/44A/52/80/81.

Bacteriophage typing and determination of antibiotic sensitivity are shown to be valuable technics for the epidemiologic study of staphylococcal infections.

Control of outbreaks in nurseries depends on prevention of nasal colonization of infants. Prophylactic medication with an appropriate antibiotic offers a practical method for preventing nasal colonization.

Nasal carriage precedes clinical infection in these epidemics. The majority of infants who develop infection do so after discharge from the hospital.

Staphylococcal disease in infants under two months of age and mastitis in nursing mothers should be reportable diseases so that public health authorities can investigate hospital nurseries as possible sources of infection.

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Natural Occurrence of Hemolytic Streptococci in Normal School Children

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High streptococcal carrier rates found among typical school children in an area where such infections are assumed to be lower than in more rigorous climates suggests caution in interpreting similar "throat culture" surveys.

Little is known about the natural occurrence of hemolytic streptococci and the epidemiology of streptococcal infections in civilian populations, in contrast to the extensive studies that have been performed in the armed services. The importance of learning more about this subject is emphasized by the observations that rheumatic fever and nephritis can be prevented by prophylaxis or treatment of streptococcal infections.[1, 2] The recent reports which show that acute glomerulonephritis often follows infections caused by certain serologic types of Group A streptococci also point toward the need for more extensive classification of these microorganisms.[2] With these items in mind a study was designed to investigate over a period of years the following problems: (1) the carrier rates for hemolytic streptococci in a specific age group of children; (2) the serologic groups and types of these streptococci; (3) the persistence or change in groups and types during the time of observation; and (4) the effect of socioeconomic and environmental factors on groups, types, and carrier rates. It is the object of this paper to report the results of the first two years of this study.

Description of Study

This study was conducted in 1953–1954 and 1954–1955 in Nashville, Tenn., a city with a population of 174,000 located along the Cumberland River. The temperature is kept within reasonable limits so that great extremes of heat or cold rarely occur. The mean annual temperature since 1910 has been 59.7° F, with a mean maximum of 69.2° and a mean minimum of 50.1°. The mean annual rainfall since 1910 has been 46.4 inches per year occurring principally in the winter and early spring. In 1955 the average relative humidity at 6:30 a.m. was 83 per cent and at 12:30 p.m. it was 55 per cent.[3]

Third-grade children from two schools, Clemons and Park, and fourth-grade children from Ransom School were studied during the school year 1953–1954. In 1954–1955 third-grade

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Table 1—Age and Sex of Study-Population in Three Nashville Schools

School and Year	No. of Children Studied	Age in Years			Sex	
		8–9	9–10	10+ *	M	F
1953–1954						
Ransom	59	1	29	29	26	33
Clemons	67	29	36	2	35	32
Park	43	17	18	8	20	23
Total	169	47	83	39	81	88
1954–1955						
Ransom	63	47	16	0	27	36
Clemons	54	29	24	1	22	32
Park	51	32	11	8	20	31
Total	168	108	51	9	69	99
Grand Total 1953–1954 1954–1955	337	155	134	48	150	187

* Oldest child was 13 years old.

children from all three schools were observed (Table 1). Permission for this work was obtained from the School Board of Nashville and consent for participation in the study was required from the parents of each child.* Only those children who attended school for at least four-fifths of the school year were included in the tabulations. In each school there were three or four each year who left school early or entered late. In 1953–1954, 169 children were studied and in 1954–1955 there were 168. In the two study years 155 children were eight to nine years of age, 134 were nine to 10, and 48 were 10 or older. One hundred and eighty-seven were females and 150 were males.

Excerpts from census tract data [4] (Table 2) illustrate clearly some of the socioeconomic differences among the populations of the census tracts in which the three schools were located. A majority of the children actually lived in the census tract in which "their" school was located, the remainder lived in bordering census tracts with similar characteristics. Ransom School, located in census tract 21, had the highest economic level, the highest educational attainments, better heating and toilet facilities, and there was less crowding in the homes than in the census tracts occupied by Clemons and Park Schools. Census tract 14 (Clemons) was intermediate and census tract 28 (Park) was definitely inferior in the categories listed in Table 2.

Beginning in mid-November of 1953 and 1954 and ending at the end of school in May, each of three physicians visited one of the schools and obtained throat cultures from each child in the study group present at school, weekly in 1953–1954 and every two weeks in 1954–1955. Cultures were taken in a standardized manner using dry, sterile, cotton swabs. The swabs were returned to individual sterile tubes and taken to the laboratory where each swab was streaked within one hour onto agar containing 5 per cent sheep's blood. The agar was also cut with the streaking wire to enhance the growth of subsur-

* The cooperation of the school health and educational authorities of the City of Nashville is gratefully acknowledged. Dr. Walter R. Manlove, director of the school health service for Nashville schools, his staff of public health nurses, the school principals, and teachers have been extremely helpful.

Table 2—Socioeconomic Characteristics of Census Tracts in Which the Study Schools Were Located *

	Census Tract 21 Ransom	Census Tract 14 Clemons	Census Tract 28 Park
Dwelling Units:			
Median monthly rent	$61.00	$44.02	$30.98
Per cent with dilapidated or no private bath	4.0	23.6	30.1
Per cent with central heating †	87.5	73.6	49.0
Crowding in Homes:			
Per cent of dwellings with persons per room > 1.01	2.5	8.5	15.0
> 1.51	0.5	1.5	5.0
Education:			
Persons 25+ years of age with 1+ years of college †	34	16	6
Family Income:			
Median income	$3,393.00	$3,021.00	$2,994.00
Per cent with income > $6,000	28	9	7

* U. S. Bureau of Census 1950.
† Twenty per cent sample.

face colonies. After incubation for 18–24 hours at 37° C the plates were observed for the presence of hemolytic colonies on the surface and in the cut areas. The number of surface hemolytic colonies was estimated as follows: less than 10 colonies, 1+; 10 to 50 colonies, 2+; more than 50 colonies but not the predominant growth, 3+; and predominant or pure growth, 4+. To isolate the hemolytic streptococci from the original plate one colony was picked and transferred. Grouping and typing were done following the procedure of Swift, Wilson, and Lancefield,[5] with the exception that 10.0 ml of bactobrain heart infusion (Difco) was the growth medium and the entire extraction procedure was carried out in the same tube. If no group reaction could be obtained by the usual procedure, Maxted's[6] extract method, using the enzyme of Streptomyces albus, was performed. In 1953–1954 an attempt was made to classify approximately every fourth isolate from each pupil. In 1954–1955 91.9 per cent of all the isolates were classified. Isolates were stored at 4° C in liquid medium and some strains would not grow on subculture. Five different grouping antisera and 37 or 38 typing antisera were used.*

Results

Carrier Rates (Figure 1)—In the presentation of this data a differentia-

* 1953–1954: Groups A, B, C, D, and G. Types: 1–6; 8; 11–15; 17–19; 22–33; 36–44; 46; 47.
1954–1955: In 1954–1955 type 27 antiserum was omitted.
Grouping and typing sera were supplied through the courtesy of Dr. Elaine L. Updyke, Communicable Disease Center, Chamblee, Ga.

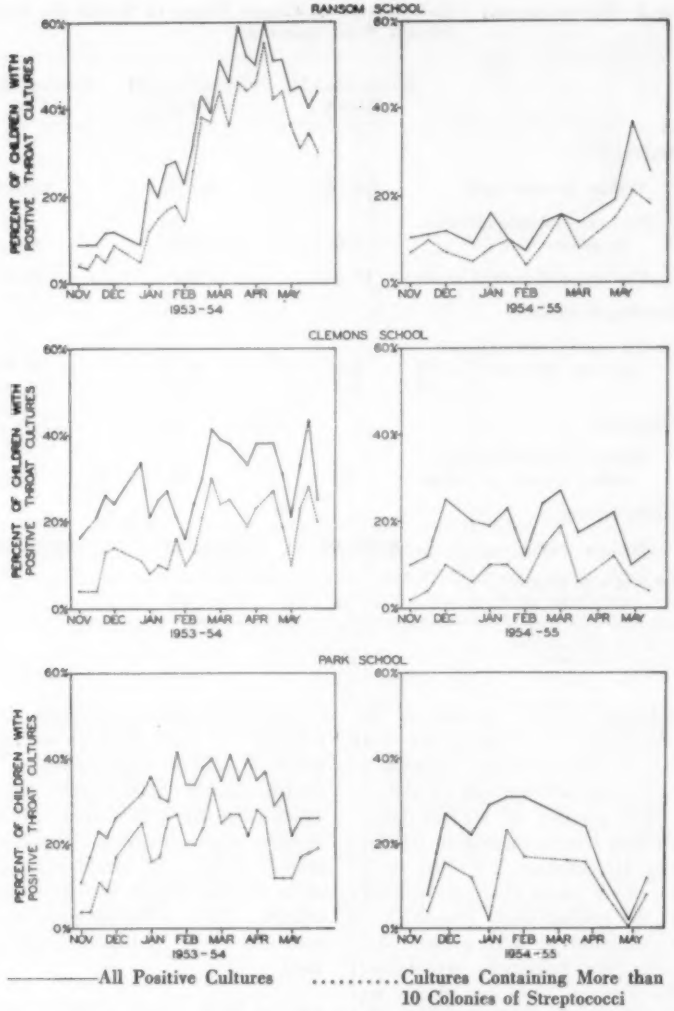


Figure 1—Per cent of Children from Three Nashville Schools Showing Hemolytic Streptococci in Throat Cultures 1953–1954 and 1954–1955.

tion has been made between cultures showing fewer than 10 colonies per plate and those showing more than 10 colonies per plate. In unpublished data from the Streptococcal Disease Laboratory, Francis E. Warren Air Force Base in Cheyenne, Wyo., it has been observed that throat cultures containing large numbers of streptococci are associated more frequently with an acute or recent

infection and the numbers of streptococci decrease over a period of weeks or months. The division of the groups is an arbitrary one and is used only to indicate roughly the quantity of streptococci carried by children.

Ransom School—The over-all carrier rates began at about the same level, 10–12 per cent at the beginning of the study in mid-November for each year. In 1953–1954 there was a steady rise to 60 per cent on April 12, whereas in 1954–1955 there was no significant increase until a very sharp rise to 42 per cent on May 9. The carrier rates, when only cultures containing more than 10 colonies are included, followed rather closely the incidence curves for the over-all rates. Seventy-nine per cent of positive cultures contained a 2+ or greater growth of streptococci in 1953–1954 and 67 per cent in 1954–1955.

Clemons School—The rates in this school began much lower and rose much less in 1954–1955 than 1953–1954. The highest carrier rates observed during the two study-years were 43 per cent on May 20, 1954, and 26 per cent on March 17, 1955. The carrier rates for the cultures containing 2+ or more colonies also followed the over-all incidence curves closely during both study-years, but the per cent of the total positive cultures was lower than Ransom School, being 57 in 1953–1954 and 47 in 1954–1955.

Park School—The over-all rates began at about the same level in each study year, 11 per cent and 8 per cent. In 1953–1954 there was a gradual rise to 41 per cent on February 2, followed by a plateau of approximately the same rates until March 30, and then a steady decline. In 1954–1955 the over-all rates reached their highest level of 31 per cent in early February and then diminished rather sharply. As in the other two schools the rates for cultures containing 2+ or greater growth of streptococci followed the over-all incidence pattern closely, at a level averaging 62 per cent of the over-all rates during each study-year.

Cumulative Percentages of Children with Hemolytic Streptococci in Throat Cultures

The cumulative percentages of children with positive throat cultures are shown in Figure 2. Eighty-eight per cent of the Ransom School children had a positive throat culture at least once

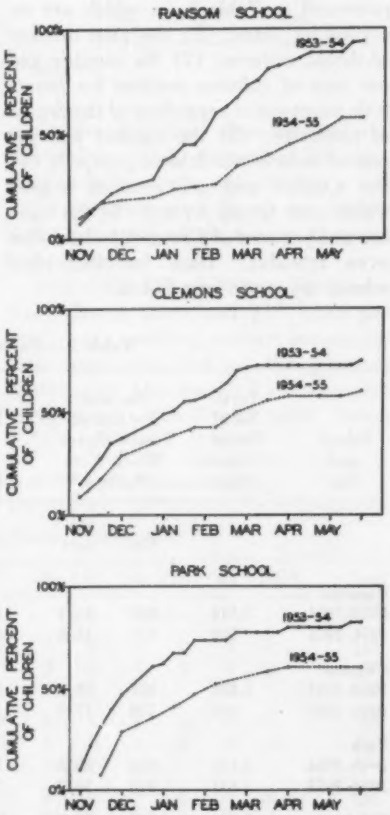


Figure 2—Cumulative Per cent of Children from Three Nashville Schools Showing Streptococci in Throat Cultures 1953–1954 and 1954–1955.

during the study period 1953–1954. The cumulative rates for Clemons School, 75 per cent, and Park School, 82 per cent, for the same year were slightly lower. Cumulative percentages were lower during the second study-year, but were similar in the three schools as follows: Ransom School 57 per cent, Clemons School 59.3 per cent, and Park School 60.8 per cent.

Bacteriologic Findings

The data for individual schools are presented in Table 3, in which are recorded by years: (1) the total number of throat cultures; (2) the number and per cent of cultures positive for hemolytic streptococci regardless of the degree of positivity; (3) the number and per cent of isolates which were grouped; (4) the number and per cent of isolates which were Group A; and (5) the number and per cent of Group A isolates that were typeable. Data for individual schools by study year follow:

Ransom School — 1953–1954—59 children. Fourteen hundred sixty-three throat cultures were taken of which 499 (34.1 per cent) were positive. Of 153 that were grouped, 143 (93.5 per cent) were Group A and of the Group A isolates 106 (74.1 per cent) were typeable.

1954–1955—63 children. Seven hundred and twenty-nine throat cultures were taken and 115 (15.8 per cent) were positive. One hundred and nine strains were grouped and 79 (72.5 per cent) were Group A. Sixty-four (81 per cent) of the Group A's were typeable. In Ransom School in 1954–1955 the average carrier rate was less than half that of 1953–1954, the per cent of isolates classified was lower, but more of the Group A's could be typed.

Clemons School — 1953–1954—67 children. Fourteen hundred and eighty-four cultures yielded 427 (28.8 per cent) positives. One hundred and forty were grouped, of which 132 (94.3 per cent) were Group A. Fifty-seven (43.2

Table 3—Bacteriologic Results

School and Year	Total No. of Throat Cultures Taken	No. and Per cent of Total Cultures Which Were Positive *		No. and Per cent of Positive Cultures Grouped †		No. and Per cent of Those Grouped Which Were Group A		No. and Per cent of Group A Typeable ‡	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Ransom									
1953–1954	1,463	499	34.1	153	30.7	143	93.5	106	74.1
1954–1955	729	115	15.8	109	94.8	79	72.5	64	81.0
Clemons									
1953–1954	1,484	427	28.8	140	32.8	132	94.3	57	43.2
1954–1955	660	118	17.9	101	85.6	99	98.0	19	19.2
Park									
1953–1954	1,116	340	30.5	138	40.6	110	79.7	70	63.6
1954–1955	541	110	20.3	105	95.5	70	66.7	8	11.4
Total	5,993	1,609	26.8	746	46.4	633	84.9	324	51.2

* Includes all positive cultures regardless of the degree of positivity.

† Groups A, B, C, D, and G.

‡ Group A streptococci which could be typed with the available antisera, usually 37 or 38 types.

Table 4—Distribution of Groups of Hemolytic Streptococci

School and Year	Streptococcal Groups						
	A	B	C	D	G	NG *	Total
Ransom							
1953–1954	143	2	4	0	4	0	153
1954–1955	79	0	0	0	30	2	111
Clemons							
1953–1954	132	0	5	0	3	0	140
1954–1955	99	0	0	0	2	5	106
Park							
1953–1954	110	0	26	0	2	0	138
1954–1955	70	0	3	1	31	2	107
Total	633	2	38	1	72	9	757

* NG = No group; not groupable with A, B, C, D, or G grouping sera.

per cent) of the Group A's were typeable.

1954–1955—54 children. During this school year 660 cultures were obtained and 118 (17.9 per cent) were positive, this rate being a little over half that of 1953–1954. One hundred and one were grouped (85.6 per cent) and 99 (98.0 per cent) were Group A; 19 (19.2 per cent) of the Group A's were typeable.

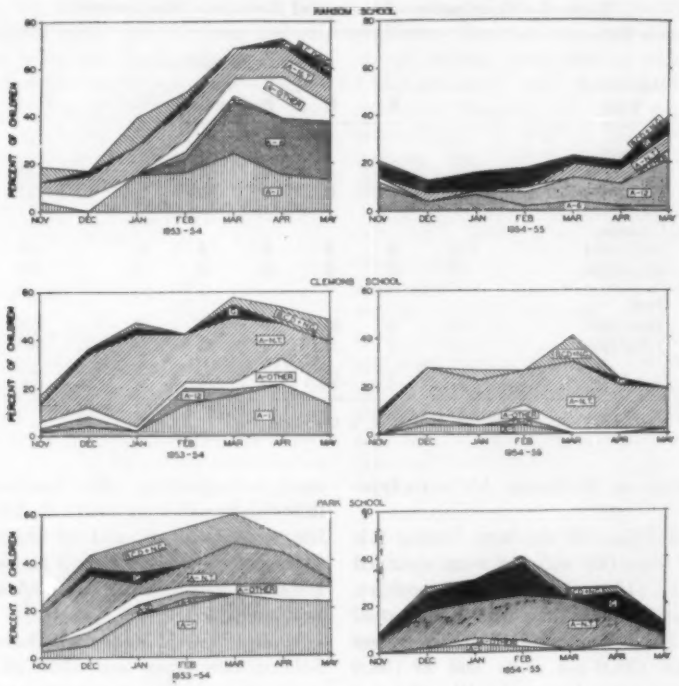
Park School — 1953–1954—43 children. Of 1,116 cultures, 340 (30.5 per cent) were positive. One hundred and thirty-eight (40.6 per cent) of this number were grouped, and of these, 110 (79.7 per cent) were Group A. Seventy (63.6 per cent) of the Group A strains were typeable.

1954–1955—51 children. There were 541 cultures taken and 110 (20.3 per cent) were positive, an average carrier rate two-thirds that of the previous school year. One hundred and five were grouped, 70 (66.7 per cent) being

Table 5—Distribution of Types of Group A Streptococci

School and Year	Types of Group A Streptococci												
	1	3	4	5	6	12	18	19	24	28	41	NT *	Total
Ransom													
1953–1954	41	17	7	0	37	2	2	0	0	0	0	37	143
1954–1955	0	1	4	0	22	37	0	0	0	0	0	15	79
Clemons													
1953–1954	33	0	10	0	0	8	2	3	1	0	0	75	132
1954–1955	7	4	1	0	0	3	0	0	0	4	0	80	99
Park													
1953–1954	45	1	3	13	1	7	0	0	0	0	0	40	110
1954–1955	5	0	1	0	0	0	0	0	0	0	2	62	70
Total	131	23	26	13	60	57	4	3	1	4	2	309	633

* NT = No type; not typeable with available typing sera.



N.G. Not Groupable
N.T. Not Typeable

Figure 3a, b, and c—Percentage Distribution of Children According to the Various Groups and Types of Streptococci Isolated in the Indicated Months by School and Year.

NOTE—The width of each band on the vertical scale is proportional to the per cent of children with positive throat cultures for that particular group and type. The total number of children on which each percentage is based is made up of those children who had at least one throat culture during the month. Children positive one or more times during the month were counted as positive for the predominant group and type; a specific group and type was chosen arbitrarily over an unclassifiable one in a few cases. In the few instances where two types were isolated with equal frequency, the first type recovered during the month was recorded. Cases where throat cultures were positive but grouping and typing was not done were prorated according to the frequencies found for those which were grouped and typed during that month. These amounted to 13.6 per cent of the total cases in 1953–1954 and 1.5 per cent in 1954–1955. The total number of children represented in Figure 3 a, b, and c (Ransom School, approximately 60 each year; Clemons School, about 70 in 1953–1954 and 50 in 1954–1955; Park School, about 50 each year) was slightly higher than in Table 1 because of the inclusion of all children, even those few who dropped out or registered late. These numbers were denominators for calculating the percentages in Figure 3 a, b, and c.

Group A. Only eight (11.4 per cent) of the Group A's as compared with 63.6 per cent in 1953–1954 were typeable.

Serologic Groups and Types of Hemolytic Streptococci

There were marked differences in the occurrence of groups and types of hemolytic streptococci, not only during the two years of study, but also among each of the three schools during each school year. In Table 4 is shown the distribution of hemolytic streptococci that were grouped and in Table 5 the distribution of types from children in the three schools during both study years.

Almost 84 per cent of all streptococci grouped were Group A, 5 per cent were Group C, 9.6 per cent Group G, and the remainder were nongroupable. The per cent of the total number of children in the study who had positive throat cultures for each of the groups and types of streptococci by month is shown in Figures 3 a, b, and c for each of the three schools. An attempt was made to type 633 Group A isolates, but only 51.2 per cent were typeable. Types 1, 6, and 12 were the most common types. Altogether 11 different types, 1, 3, 4, 5, 6, 12, 18, 19, 24, 28, and 41, were identified during the two study years. In 1953–1954 Type 1 was the most common, increasing gradually in all three schools then declining after March or April. In 1954–1955 this type was found rarely. Type 6, isolated almost exclusively in Ransom School, increased in frequency in 1953–1954 but almost disappeared during the next school year. Type 12 was isolated in very small numbers in all three schools in 1953–1954, but after its appearance in three cultures in Ransom School on February 28, 1955, it was the most common typeable strain in this school, and the sharp increase in carrier rates on May 9 was due primarily to this type. Nontypeable strains were prominent throughout both study years, especially in Clemons and Park Schools.

Effect of Socioeconomic and Environmental Factors

In order to check the effect of socioeconomic and environmental factors on streptococcal carrier rates schools were chosen from census tracts that varied in these respects. In contrast to what

Table 6—Crowding Data for the Homes of Children in the Study

School and Year	No. of Persons per Room *	Per cent of Homes with Three or More Persons in Child's Bedroom	Per cent of Homes with Two or More Persons in Child's Bed
1953–1954			
Ransom	0.71	9.6	24.1
Clemons	0.79	18.4	29.2
Park	1.32	50.0	70.4
1954–1955			
Ransom	0.68	8.4	15.2
Clemons	0.81	24.5	43.3
Park	1.30	50.0	62.0

* Number $= \frac{\text{Number of persons living in house}}{\text{Number of rooms in house}}$

was anticipated, Ransom School, in the tract with the highest socioeconomic and environmental standards, also had the highest carrier rates during both study years. When these unexpected results were obtained, the homes and classrooms of the children were studied to determine if crowding at the time the study was in progress might have some influence on the differences in the carrier rates observed. Three criteria of crowding were used; the number of persons per room, the number of persons per bedroom, and the per cent of children sleeping two or more per bed. These data are recorded in Table 6 for both years of the study. Ransom School children were consistently less crowded than either of the other two groups of children; Clemons School children were intermediate as far as crowding in the home was concerned; Park School children were consistently and significantly more crowded at home but the carrier rates were not significantly higher in these children. The number of children per schoolroom and the number of cubic feet of air space per child in the schoolrooms were not significantly different in any of the schools for either school year. No correlation could be made, therefore, between increased streptococcal carrier rates and crowding in the homes or schools.

Effect of the Presence or Absence of Tonsils on Carrier Rates

In 1953–1954 the presence or absence of tonsils did not affect the carrier rates markedly because the rates for children with tonsils and for children without tonsils were not significantly different in any of the schools (Table 7). In 1954–1955, however, there was a decided difference and there were significantly more children with positive throat cultures whose tonsils were present than among those without tonsils.

Individual Case Records

During the 1953–1954 study year the results of the throat cultures of several

Table 7—The Effect of the Presence or Absence of Tonsils on the Occurrence of Hemolytic Streptococci in Throat Cultures

School and Year	Tonsils Present		Tonsils Absent	
	No. of Children	Per cent of These Children Who Were Streptococcal Carriers *	No. of Children	Per cent of These Children Who Were Streptococcal Carriers *
1953–1954				
Ransom	40	85	19	95
Clemons	58	78	9	56
Park	36	83	7	71
Total	134	81	35	80
1954–1955				
Ransom	40	68	23	39
Clemons	42	69	12	25
Park	39	72	12	25
Total	121	69	47	32

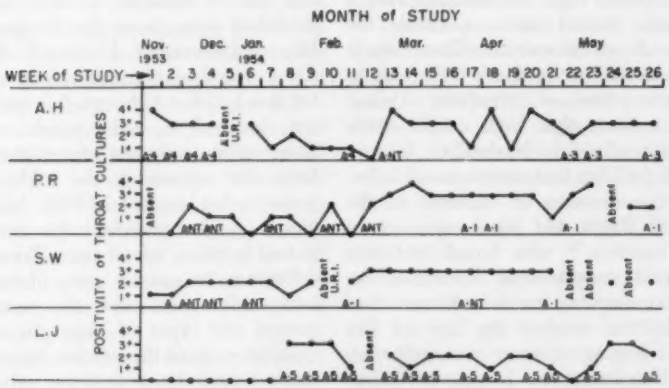
* The per cent of children who had positive throat cultures for hemolytic streptococci on one or more occasions.

children were remarkable enough to warrant special mention. In these individuals hemolytic streptococci were isolated from almost all cultures; the groups and types changed in some and remained constant in others. Complete individual case records are shown in Figure 4. Child A.H. had a positive throat culture each week of the study, with one exception when she was home with a "cold." During the school year A-4, A-NT, and A-3 were isolated from her throat. P.R. had a few colonies of A-NT for several weeks, then the colony counts rose to 3+ and 4+, after which A-1 was recovered during the rest of the school year. The child was not absent from school because of illness at the time of the change in type. S.W. had A-NT for nine weeks and was then absent with an upper respiratory infection. On return to school the cultures were positive for A-1, which remained for at least eleven weeks. L.J.'s culture became positive during the ninth study week and remained positive for A-5 during the remainder of the 19 weeks of school.

Discussion

In contrast to the intensive studies of the epidemiology of streptococcal infections in World War II in military populations in which streptococci were classified by group and type,[7–10] there have been few such studies in civilian populations. Noteworthy is the scarcity of adequate data on the natural occurrence of hemolytic streptococci in nonepidemic periods in civilian populations.

The finding of carrier rates for hemolytic streptococci ranging at their peak in 1953–1954 from 43 to 60 per cent and cumulative rates from 75 to 88 per cent was remarkable for several reasons. These rates, which appear to be unusually high, occurred in an area of the middle southern United States where it has often been said that streptococcal infections and rheumatic fever do not occur as frequently as in areas further north, and at a time when antibiotics were being employed extensively and irrationally in the treatment of many respiratory infections. Accurate in-



1+ = less than 10 colonies; 2+ = 10 to 50 colonies; 3+ = more than 50 but not the predominant growth; 4+ = predominant or pure growth.
A = Group A; C = Group C; G = Group G.
1, 3, 4, 5 = Types of Group A; NT = Group A, Nontypeable.

Figure 4—Occurrence of Hemolytic Streptococci in Four Children During the Study Year 1953–1954.

formation on the use of antibiotics in these children was not available but the results in general suggest, that if antibiotics were having a diminishing effect on carrier rates, the effect must have been minimal.

In a recent report, Packer, et al.,[11] found in Memphis, Tenn., a city not far from Nashville, carrier rates for orphanage children in the same general range as those of Nashville children. Another recent attempt to determine carrier rates for hemolytic streptococci in children was that of Saslaw and Streitfield[12] in Miami, Florida, a tropical city. They found that 20.1 per cent of children harbored hemolytic streptococci in their throats at least once in a four-month study period in 1954. Pike and Fashena[13] have summarized the hemolytic streptococcus carrier studies in civilian populations up to 1946 in which serologic grouping was reported. The highest carrier rates were those observed in their own study of children attending venereal disease and dental clinics in Dallas, Tex. Twenty-five per cent of 900 throat cultures obtained from 756 children over a 13-month period were positive for Group A streptococci. These three studies noted briefly above[11–13] done in different areas of southern United States indicate that high carrier rates are not confined to Nashville. In support of the idea that streptococcal infections are common in children is the work of Rantz and his co-workers in San Francisco[14] who found that new hemolytic streptococcal infections occurred commonly in infants and that few children reached the age of five without having at least one and often several apparent or inapparent infections due to the hemolytic streptococcus. Holmes and Williams[15] during an 11-week period in the autumn of 1949 in England, found throat carrier rates of 22.7 per cent for children attending schools or day nurseries.

In view of the findings above, the carrier rates for hemolytic streptococci in Nashville school children appear to be unusually high. The experience of these Nashville children is not unique, however, because many of the findings of Schwentker, Janney, and Gordon[16] of the epidemiology of scarlet fever in Rumania, such as the presence of a large number of different types in non-epidemic times, the change of serologic types from year to year in the same community, and the seasonal and yearly changes in streptococcal carrier rates were similar to these of the continually changing picture in Nashville.

The findings of the present study are of special interest because they furnish information on the occurrence of specific groups and types of hemolytic streptococci in two separate groups of normal preadolescent school children in three different schools during two school years. Since the majority of the cultures showed large numbers of Group A hemolytic streptococci, it is believed that this is evidence of recent or present infection. The studies of Bloomfield and Felty,[17] Rhoades, et al.,[18] and unpublished data from the Streptococcal Disease Laboratory, Francis E. Warren Air Force Base, furnish strong support for this belief. Although this study was not designed to make careful clinical observations, only one case of rheumatic fever was reported to the public health nurse (school nurse) in 1953–1954. No cases of glomerulonephritis were reported in either school year. The marked difference in carrier rates during the two study years and the change in groups and types of hemolytic streptococci in each of the schools during each study year indicate that the natural occurrence of streptococci is a continually changing process and one cannot predict accurately what will happen from year to year.

If, as several investigators indicate, immunity to streptococcal infections is

type-specific [19–22] the large number of types would preclude the possibility that any large segment of the community would become immune to very many types. Immunity to one or two types may be acquired by a child during a school year, but if the prevalent types change in the community (as they did in these Nashville schools) the individual would be susceptible to the new types. There was no single strain predominating at any one time in either year as was the case in the mammoth epidemics of streptococcal infections which occurred during World War II in recruit training centers of all the armed services. Rather, the situation in regard to the prevalence of different types at different times was similar to that in the Rumanian villages studied by Schwentker and his colleagues.[16]

Why the carrier rates changed markedly from year to year and why the prevalent serologic types changed remains unanswered. Changes in the weather were insignificant, meteorologic conditions being quite similar during both study years; and these factors therefore do not explain why the rates changed. The environmental factors in the schoolrooms, such as crowding, were similar in all three schools and do not offer any help in explaining the differences in carrier rates. Environmental conditions in the homes, such as crowding, also did not explain the differences. Contrary to what might be expected, Park School children, whose homes were consistently more crowded and of the poorest physical condition did not have the highest carrier rates in either of the study-years.

The effect of the presence or absence of tonsils on the carrier state is complex. The findings in 1953–1954, in which the presence or absence of tonsils had little effect on the carrier rates, were at variance with those of the Commission on Acute Respiratory Diseases [7] in which there was a definite association between the presence of tonsils and the duration of the carrier state following a food-borne epidemic of streptococcal infections. Likewise the findings in 1953–1954 differed from those of Holmes and Williams [15] whose data showed a striking positive correlation between throat carriers of hemolytic streptococci and the presence of tonsils. Although the problem of the effect of tonsils on carrier rates is being studied, more data will be needed before any conclusions can be reached.

Summary

This paper presents the findings of the first two years of a study in which throat cultures were obtained from third- and fourth-grade children attending three Nashville schools serving three different socioeconomic areas. Cultures were obtained every week during the study-year 1953–1954 and every two weeks in 1954–1955. Hemolytic streptococci were classified according to serologic groups and types; carrier rates were determined; and certain epidemiological correlations were made.

The carrier rates were highest in Ransom School, in the best socioeconomic area, reaching a high of 60 per cent in 1953–1954 and 42 per cent in 1954–1955. The highest for Clemons in the middle, and Park in the lower socioeconomic areas were 45 per cent, 26 per cent and 41 per cent and 30 per cent, respectively, in 1953–1954 and 1954–1955.

Cumulative percentages of children with positive throat cultures were 88 per cent, 75 per cent, and 82 per cent for Ransom School, Clemons School, and Park School, respectively, in 1953–1954 and approximately the same for all three schools, about 60 per cent, in 1954–1955.

Group A streptococci composed 83.7 per cent of all streptococci recovered, Group C (4.7 per cent) and Group G

(9.8 per cent) accounting for most of the other hemolytic streptococci.

Approximately 52 per cent of all the Group A strains were typeable. The typeable strains isolated most frequently were 1, 6, and 12. Types changed in each school in each study year.

The degree of crowding in the home and school and meteorologic conditions did not seem to influence the carrier rates directly.

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Haven Emerson

October 19, 1874–May 21, 1957

> **"The world will be saved, if it can be, only by the *unsubmissive*." *Andre Gide.***

The final curtain for an era in public health descended on May 21, 1957, with the death of Dr. Haven Emerson at the age of 82. His career of almost half a century spanned a period of fundamental achievement and crucial change in the problems of individual and community health. He treated the last case of cholera in New York, and went on to recognize the opportunities for expansion of public health work into such new and untried fields as heart disease, alcoholism, mental hygiene, and numerous others. Haven Emerson began his career at a time when there was no such thing as a profession of public health; at his death there was a recognized, well organized profession, trained to deal with health problems of the community and actively concerned with many of those to which he had called attention.

There were several settings for the activities out of which emerged the major and, in some instances, permanent contributions made by Haven Emerson to the cause of world health. He came of a family with a tradition of public service, and his father, John Haven Emerson, was one of the first physicians in New York to devote himself to public health work. However, after graduating from the College of Physicians and Surgeons in 1899, he taught physiology and clinical medicine there, and carried on a general medical practice until 1913. It was during this period that his attention turned to public health. In 1914 Emerson became sanitary superintendent and the following year commissioner of health of New York City, a position which he held until his entry into military service in 1918.

The foundations for the formidable edifice of his life's work were laid at this time with contributions to epidemiology and vital statistics. The severe epidemic of poliomyelitis which attacked New York in 1916 led him to conduct one of the first exhaustive studies of its etiology, epidemiology and possible control. During the First World War, Emerson served as chief epidemiologist to the A.E.F., an experience summed up in *A General Survey of Communicable Diseases in the A.E.F.* (1919). The importance of these contributions is overshadowed, however, by the report on the *Control of Communicable Diseases in Man*, which remains a lasting

monument to his labors in this field. This is not the place for a history of this remarkable document. Nonetheless, it should be noted that when the first edition appeared in 1917 it covered 38 diseases common to the United States and defined 12 terms. The eighth edition (1955) deals with 102 diseases, almost three times as many as the first, and has 34 definitions. In addition, the report has been translated into a dozen foreign languages and is accepted as a standard guide by many governments throughout the world. Emerson chaired the committee responsible for this report through the first seven editions of the publication. But even while he was still concerned with these problems, he already visualized the tasks to come. As early as 1908 he discussed "Carious Teeth in the Tenement Population of New York City"; in 1917, he pointed to "Alcohol—A Public Health Problem"; in 1921, he emphasized the need for "Making Health Knowledge the Property of the Community"; in the same year he called attention to "The Prevention of Heart Disease: A New Practical Problem"; and in 1922 to "The Place of Mental Hygiene in the Public Health Movement."

These forays into the future were paralleled by equally significant contributions to vital statistics. Haven Emerson has been described, and not without reason, as a man who was easily and usefully irritated to action. Nowhere, perhaps, is this more evident than in his endeavors to develop uniform procedures for reporting and classifying causes of morbidity and mortality. Repelled by the chaotic and illogical state of national medical terminologies, he worked for a uniform system of disease nomenclature now accepted on a global basis. At the same time he also saw how important to the health worker is a knowledge of current morbidity derived from proper hospital records.

Recognition of the need for rationalization and standardization of methods likewise mark Emerson's approach to public health administration. In 1919, he discussed the "Standard Budget: the Health Officer's First Need," and went on to develop other aspects of this field in later years. Thus, in 1930, he presented a study of "Estimated Needs for Organized Care of the Sick," one of the earliest endeavors in this area. All of this led eventually to the campaign for local health services in the forties.

The decades of the twenties and thirties brought these ideas to bear on a wider range of action. During this period, Emerson occupied the chair of public health administration in the Faculty of Medicine of Columbia University and devoted himself to the training of graduate students in public health as well as to the teaching of medical students. Not unexpectedly his academic career was combined with continuous field activity. Between 1921 and 1931, he conducted many health and hospital surveys in the United States and carried on relief work in Germany and Greece. From 1935 to 1937 he conducted the New York Hospital Survey. In 1940, Emerson became emeritus professor at Columbia, but with his innate incapacity for retirement he soon turned with relish to his last great campaign. From 1942 to 1954 he was chairman of the Subcommittee on Local Health Units of the Association's Committee on Administrative Practice. One of the results of this endeavor was the preparation of the standard reference work *Local Health Units for the Nation*, published in 1945. In 1949, Emerson received a Special Lasker Award for developing this program.

Throughout his long career, Haven Emerson was active in many causes and numerous organizations. Not all of them can be mentioned here, but one cannot omit some reference to the whole-hearted devotion and service which he gave to the American Public Health Association. He was president of the Association in

1933–1934, and served with several of its committees, particularly those on Administrative Practice and Professional Education. In 1935, the Association bestowed on him the Sedgwick Memorial Award. He was also a member of the New York City Board of Health (1937–1957), and a trustee of the W. K. Kellogg Foundation and of the Oberlaender Trust.

Alistair Cooke has described him, not unjustly, as a "superb and dedicated nagger in what the public barely knew to be the public interest." Yet, Emerson was a "nagger" because he held unflinchingly to values and principles. Recognizing the profound social significance of health and disease, his motto might well have been the Ciceronian dictum, *salus populi, suprema lex*. At the same time there was in him a persistent strain of the Enlightenment modified by its passage through New England. He expressed this best in his presidential address delivered in 1934. He said: "If I were challenged to describe the elements necessary to assure further improvement of human health in our associated nations, these three would seem real and pressing: some increase in effective intelligence; something of the spirit of religious devotion even to the point of self-denial in the material possessions and accessories of today's life; and lastly, courage to apply what biology has taught us to believe." Out of this profound belief in and respect for the rationality and dignity of man came, paradoxically, his intolerance of the "fuzzy-minded nitwits who speak with authority concerning matters they do not understand," his attacks on the handling of Indian affairs, as well as his distaste for excessive centralization of governmental power. These were the qualities which enabled Haven Emerson to contribute so much to the welfare of the people and the betterment of their health. At the end of his long and fruitful career, Haven Emerson, like the Roman administrator Frontinus, some two thousand years earlier, could have said with pride that by his labors not only had he made the city cleaner but had also removed the causes of disease which had previously given it a bad name. May his example remain an inspiration to those who will carry on in the days and years to come.

LETTER TO THE EDITOR

To the Editor:

My paper on "Implications of the Midwest Typhoid Fever Outbreak of 1956," presented at the Atlantic City meeting and published in the February issue of the Journal, has apparently been found interesting to a great many people, judging from the comments I have received and a relatively large number of requests for reprints from various parts of the United States and from foreign countries.

Several features of this outbreak made it unusual. The cases were widely scattered throughout several states. There were no multiple cases in a family and no secondary cases. Cultures of family contacts failed to reveal typhoid carriers or Salmonella infections. Except in a few possible instances, the cases were not acquaintances. There was no point of common assembly and no point visited by any large number of cases. The causative typhoid organism, phage Type E1, is one normally involved in only about 20 per cent of cases in the outbreak area. In spite of careful checking no most likely food source could be de-

termined. Although the source was not found and eliminated, the outbreak was not repeated in the corresponding months of 1957.

While the typhoid outbreak has not been repeated, there are reports of a more widespread outbreak of Salmonella infections, apparently of a common type, occurring this year and involving several hundred cases in the eastern part of the United States. This current outbreak appears to be similar to the typhoid outbreak of last year in that cases are scattered and unrelated. This occurrence confirms the speculation, expressed in my paper, that enteric infections other than typhoid might be spread in a similar manner, and lends emphasis to the weaknesses in sanitary control of food production and processing.

Dr. E. Forbes Mackenzie, district health officer of Melbourne, Australia, commenting on my paper, furnished information and a published report on a wide-scale epidemic of typhoid fever in Australia in 1953, which was traced to desiccated coconut and involved over 250 cases. In this outbreak, also, the causative organism (cultured from cases and isolated from coconut) was S. typhi E1, although the report states that this is a common type in that country and the one responsible for 500 cases caused by milk in the City of Moorabbin in 1943. The coconut involved was processed in New Guinea, but because of a time lag it was not possible to make a conclusive investigation of the factory or to locate the native laborers employed at the time of the contamination of the product. The study of the outbreak followed a course similar to that reported in my paper, with many false leads being investigated before a conclusion could be reached. In this situation, however, multiple cases did occur in some households and there were also combined infections. This made it possible to limit the number of foods to be studied and ultimately focused attention on coconut.

There is no evidence to indicate that coconut was responsible for the outbreak on which I reported, although it may have been. It would be necessary to investigate shipping conditions and survival time of the organism on the dried product and to restudy the food lists to ascertain this possibility. At any rate the Australian report emphasizes the difficulties in solving a problem of this kind. The following statement in the conclusion to Dr. Mackenzie's report, published in the July to December, 1953, issue of the Health Bulletin, Department of Health, Melbourne, could have been used for my article:

"In reviewing this outbreak it seems reasonable to assume that there has been some gain to the community for it has been revealed that there must be better supervision of foodstuffs."

FRANK L. WOODWARD, Director,
Division of Enviromental Sanitation, Department of Health,
Minneapolis, Minn.

Clearing House on Public Health Salary Information and Personnel Needs

Public Health Needs Glamourizing

The engineering department of the University of Michigan asked 33 senior civil engineering students their opinions as to why undergraduate engineers do not select sanitary engineering as a career extensively. The answers indicate that there is still much to be done to make the sanitary engineers job challenging and publicize its opportunities.

A sanitary engineer is "A garbage man who went to college," "students are not humanitarian enough to want to help make the world sanitary," sanitary engineering lacks "glamour" or "prestige," are some of the suggestions of the students. The difficulties of working for government also loom as important. Lack of security, role of seniority and politics in advancement, the inability to initiate action because of voter apathy are some of the handicaps listed. An interesting comment of 19 students was that sanitation is more the responsibility of the medical profession than of engineering. "Sanitary engineering has little to do with engineering aptitudes and requires courses generally disliked by engineers."

Salaries also come in on the minus side of the ledger. There was an impression that local governments pay less than private companies, that although municipal engineering offers fairly high starting salaries, the end of the salary escalator is soon reached unless one moves to a larger city.

As to some of the remedies, the students suggested a need for information on the importance, requirements, and potential of the sanitary engineering field, particularly earlier in their undergraduate careers. Finding a new name was suggested. Scholarships on the basis of high school sanitary projects, publication of material showing opportunities and describing the work such as is put out by private companies recruiting engineers are other suggestions.

This study is summarized in a news release of February 25, 1957, and is available, together with further information from Andrew Doty, University of Michigan News Service, 3564 Administration Bldg., Ann Arbor.

Rehabilitation Slowed by Salaries

Trained Rehabilitation Workers: How Much Are They Paid? is described as "a comparison of salaries with other occupations." As with practically every other health discipline, "there is an acute shortage of professionally trained personnel in rehabilitation." The report points out that although the "wonder drugs," advances in surgery, and other advances in medicine have kept alive thousands who would have died of their illnesses or injuries 50 years ago, there is still a question whether a society that can save a life can also give meaning to it.

The commanding fact emerging from the study is that "salaries today offered trained professional personnel in rehabilitation are inadequate. They compare unfavorably to salaries in comparable fields; they compare unfavorably with salaries for work requiring less training and responsibility. . . . Unless action is taken soon our country will suffer from the consequences of an insufficiency of trained people who can rehabilitate the thousands of Americans who can be trained and to work as self sustaining (and productive) citizens."

The study found that rehabilitation salaries are comparable to those of truck drivers, senior accounting clerks, and private secretaries, that they are lower than salaries of school teachers in the larger cities, that they are lower than those of tool and die makers, railroad workers, senior draftsmen, and automobile workers, for example.

The study, the first of a series on Rebuilding Human Lives was made by The Seventh Company, at the request of the Bulova Watch Company Foundation, which supported it. For more than a decade the Bulova School of Watchmaking has been training handicapped veterans and others who have gone into many precision fields. Ten per cent of Bulova's own personnel are handicapped.

The Seventh Company, 60 East 56th St., New York 22. No information as to costs.

Environmental Health Salaries

A Committee on Salaries of the Conference of Municipal Public Health Engineers has made a study of salaries of environmental health workers in local health departments which covers about 43 per cent of an estimated 7,500 such workers. The first of five reports, covering the general picture, has been published. It found that low salaries paid by local health departments compared with those paid to professional and technical workers in other fields is responsible for an increasing shortage, particularly of sanitary engineers. Vacancies were reported in 23 per cent of budgeted engineer and 7 per cent of sanitarian positions.

During the five-year period covered by the study, salaries have risen from 5 to 13 per cent annually. Nevertheless median annual salaries of engineers in health departments were $1,000 less than those of engineers in county or municipal governments and $2,400 less than for engineers generally. The median salary of sanitarians has since 1952 been $2,000 or more below that of engineers in health departments.

Other sections of the report still to come will discuss the relationship of experience, education, and supervisory and program responsibility with salary levels. The four sections still to come are subtitled Engineers, Sanitarians, Other Sanitation Personnel, and Conclusions and Recommendations.

The General Picture report was published in the June, 1957, issue (Vol. 83, No. SA3) of the Journal of the Sanitary Engineering Division, Proceedings of the American Society of Civil Engineers, 33 W. 39th St., New York 19. The report is also available from the Salary Committee's chairman, Walter A. Lyon, Philadelphia Department of Public Health, City Hall Annex, Philadelphia 7.

Where Dentists Are Most Needed

By way of helping dentists to locate where they are most needed, the American Dental Association has recently published "Distribution of Dentists in the United States by State, Region, District, and County," and "Facts about States for the Dentist Seeking a Location."

The first indicates that there is one dentist for every 1,667 persons in the United States as a whole. This varies, however, from one to 1,402 in six middle eastern states and the District of Columbia to 3,076 in the 11 southern states. As to individual states, the ratio varies from one to 1,127 in New York to one per 4,886 in South Carolina, the only state in the union in which one dentist must serve more than 4,000 persons. The ratio of dentists to population appears to be closely related to the number of dentists graduating in the state. The regions with the fewest dentists per unit of population are the

regions with the smallest ratio of 1955 dental graduates and vice versa.

The fact book repeats this material but with more detail classifying the dentists by type of specialty. Exactly 27 public health dentists are listed, 14 of them in the Public Health Service. None are reported in either New England or the Southwest. An analysis of Negro dentists shows but one per 8,948 of Negro population. Requirements of state boards of dental examiners, examination and registration fees, per capita income of dentists, income taxes, growth of population, urban and rural population are other items analyzed. One table items the movement of nearly 10,000 dentists, about 10 per cent of the total, from one state to another during 1954 and 1955. Nearly half of the relocated dentists are in the federal services.

The two reports are available from American Dental Association, Bureau of Economic Research and Statistics, 222 East Superior St., Chicago 11.

Photographs As Recruitment Material

"Nursing: A Career That Counts" is a special issue of Community Health, the quarterly news bulletin of the Hospital Saving Association (Blue Cross-Blue Shield) of Chapel Hill, N. C. It is a very brief story in pictures of the course of a girl's nurse training. The text for each photograph is an excerpt from a supposed letter of the nurse trainee to her mother. It is all designed to give the young girl choosing a career a sense of the thrill and excitement of the training period.

Hospital Saving Association, Chapel Hill, N. C.

Engineering Salary Index

A Quarterly Engineering Salary Index has become a regular feature of "Civil Engineering" beginning with the April, 1957, issue. Base for the new Index is the sum of the 1956 minimum salaries for professional engineering Grades GS-5, -7, and -9 of the federal Civil Service. New Indexes will be based upon entrance salaries paid in selected consulting engineering firms. A separate index will be maintained for salaries paid to state highway department employees. According to the first report based upon salaries in effect on February 15, 1957, the New York City index was 1.11, San Francisco 1.09, and Atlanta 1.10. The highway index for the same period is tabulated by geographical regions. Two regions, the New England and the West showed decreases with an over-all index of 0.96 and 0.84, respectively. The middle Atlantic region had an index of 1.06.

A Texas Health Recruitment Tool

"Deep in the Health of Texas," subtitled There's a Career for You, is a description of the several principal health occupations, other than medical, dental, engineering, and health education that young people seeking a career might enter. The nurse-vocational, B.S., R.N.; dietitian; medical technologist; x-ray technician; occupational and physical therapist; medical record librarian; psychiatric and medical social worker; and pharmacist are included. Although the emphasis is upon staffing hospitals and other medical institutions, the public health opportunities are mentioned for several of the categories.

The workers contribution to the work of the health team, his personal and educational qualifications, and the opportunities are each described briefly. The booklet is in an attractive, readable, two color format.

Texas Commission on Patient Care, 1801 N. Lamar Blvd., Austin, Texas. No information on cost.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Problems of City Growth

The Flint (Mich.) Journal has done a public service in studying the problems arising out of the growth of Flint and its immediate town, city, and township neighbors, publishing the results both in a series in the journal and later in two brochures. The titles of these are: "Where's Flint Going?" and "What's Going on Here?" The first is subtitled "The Metropolitan Area a Look at Problems Confronting Flint and Its Neighbors."

In the first volume the Flint situation is outlined, with particular reference to the growth of fringe areas and the lack of facilities, such as proper sewage disposal, building codes, water supply, and many others. Annexation of these fringe townships that are called "headless organizations" is discussed pro and con.

In addition, there is a summary of the way seven cities have met their similar problems—metropolitan district in Hartford; Toronto's metropolitan municipality; Boston's Metropolitan District Commission, a state agency; annexation in Milwaukee; Denver's annexation policy that requires payment for the privilege by the fringe area; Birmingham's allocation of many functions to the county; and Atlanta's division rather than duplication of responsibility between city and county. Information was obtained through actual field surveys by the Flint Journal staff.

"What's Going on Here?" details the story of studies being carried on in a number of cities as to how the problem should be met. The city surveys here summarized are those of Cincinnati, Columbus, Indianapolis, Miami, Midland (Mich.), Pittsburgh, Toledo, and Seattle.

This is valuable material not only for the Flint Area study group for which it was prepared but for many other areas as well. It has particular relevance for public health planners because of the special problems of providing adequate health services in a variety of jurisdictions of small populations.

Flint Journal, Flint, Mich. No information as to cost.

The State Health Department discusses similar problems in the January issue of "Michigan's Health." The ways communities with burgeoning populations have expanded their water and sewer systems are described—purchasing service from private companies which is not recommended; establishing township districts which presents special financing problems; contracting with neighboring municipalities as in the case of Detroit which furnishes water and sewer services to 26 neighboring communities; forming metropolitan service districts; setting up a county plan; organizing a water authority; annexation; and incorporation.

MAC of Carbon Tetrachloride

The American Standards Association has published standard Z37.17–1957, "American Standard Maximum Acceptable Concentration of Carbon Tetrachloride." Prepared by a committee of the ASA, the report discusses properties of carbon tetrachloride, maximum acceptable concentrations, and sampling procedures and analytical methods. A section on references is also included. Lewis J. Cralley, Ph.D., Division of Oc-

cupational Health, U. S. Public Health Service, was the representative of the American Public Health Association on the committee. American Standards Association, 70 East 45th St., New York 17, N. Y.; 50 cents if order includes remittance, $1 otherwise.

Public Health in Burma

The late Murray P. Horwood, Ph.D., professor of sanitary science, Massachusetts Institute of Technology, reviewed his two years as director of an educational project at the Engineering College of the University of Rangoon sponsored by MIT. In a 60-page document he discusses the various aspects and resources of public health in a country with only four years of independence behind it when he first went there.

But he discusses not only strictly health problems, but also the psychologic barriers to complete understanding, the need to adjust to wholly new conditions, the special demands of the climate, and the many material hardships.

The wider implications of the report are suggested as follows: "The Orient is impinging on our welfare to an increasing degree and its importance in our daily lives is destined to grow with the passage of time. Public health in the Orient is therefore of great significance both to the western world as well as to the people who are directly and intimately involved."

Publication of the report was made possible through a grant from the William Thompson Sedgwick Memorial Fund at MIT.

Air Pollution Agency Directory

A "Directory of Governmental Air Pollution Agencies," published by the Air Pollution Control Association in cooperation with the U. S. Department of Health, Education and Welfare, lists by states the addresses and the names of the principal administrative officer of the agencies. These are not necessarily full-time staffed units. Also shown is a code designating either full-time air pollution control program, part-time air pollution control program, or only service to answer questions or complaints. The Directory giving information as of July 31, 1956, is a revision of the original document published in September, 1955. Copies available from Robert A. Taft Sanitary Engineering Center, Public Health Service, 4676 Columbia Parkway, Cincinnati 26, Ohio.

Worth Acquiring

"Planning Your Exhibit" is the 1957 edition of one of its nine how-to-do-it pamphlets of the National Publicity Council for Health and Welfare Services. This pamphlet was first published in 1943 and revised in 1948. The present edition bears little resemblance to the first one. The 1948 and 1957 editions have the same chapter headings and much the same text. There are entirely new illustrations in the latest one. Each edition is more readable and has better typography than the previous one.

The important first task about an exhibit is to answer the basic questions of why an exhibit and what it is to say. That and an entire page of warning precedes 30 pages devoted to planning and execution. This is a valuable booklet both for one who has decided on an exhibit and one who is considering an exhibit as one of his publicity technics.

The authors are Janet Lane and Beatrice K. Tolleris. National Publicity Council, 257 Fourth Ave., New York 10; $1.25.

"Manual of Procedures, Topics, and Materials for Discussions in Mental Health" is published by the National Academy of Religion and Mental Health.

Prepared for those who "seek to pool and enrich their knowledge of public health," its purpose is to "help foster and develop better communication among those concerned with public health . . . parent, doctor, clergyman, school teacher, social service worker, recreational worker, psychiatrist, and others professionally engaged in mental health."

Procedures, Topics, and Materials are dealt with in 112 pages in a spiral binder. Many individuals and groups helped in the preparation, among the latter the Mental Health Materials Center, the Mental Health Film Board, the National Committee on Alcoholism, and the New York State Mental Health Authority. This ought to be a valuable aid in keeping alive and developing into effective programs the stimulation of such recent activities as the creation of the Joint Commission on Mental Health, the stepped-up federal appropriations for mental health research, the 1957 National Health Forum on Mental Health, the birth of the Mental Health Section in the American Public Health Association, and Mental Health Week, among others.

National Academy of Religion and Mental Health, 2 E. 103rd St., New York 29. No information as to cost.

"The Children We Teach" is a new pamphlet of the Mental Health Materials Center designed to help parents, teachers, and all who work with children in a guidance capacity understand the developing personality of the child. Each of the 10 chapters is devoted to one type of behavior that each teacher sooner or later encounters in the classroom—the show-off, shy child, bully, troubled reader, among others.

"Children We Teach" is written by Nina Ridenour. Its language is simple, clear, eminently readable without a trace of professional jargon. The writing is so vivid that one looks a second time before believing there are illustrations only at chapter heads.

The State Health Departments of Illinois, Kansas, and Ohio are cooperating with the State Departments of Education in distributing this pamphlet to elementary schools in the states. These cooperative projects were initiated by the health departments as part of their school health programs.

Mental Health Materials Health Center, 1790 Broadway, New York 19; 40 cents, reductions for quantity orders.

"Highlights of Research Progress, National Institutes of Health, 1956" summarizes the 1956 research studies conducted and supported by the 11 constituent institutes or divisions of the National Institutes of Health. The chapter for each institute is complete in itself with a summary of highlights, index, and a brief description of studies and what was found through them. For example, the National Cancer Institute chapter summarizes 55 different studies under four main classifications—causation, characteristics, diagnosis, and treatment.

The "Highlights" are described as "not comprehensive" but "helpful as representative of current progress." National Institutes of Health, Bethesda, Md.

"Mr. Finley's Feelings," is a 10-minute, 16-mm., animated, color film produced by the Metropolitan Life Insurance Company on the subject of emotional health. The film is planned as the first half of a two-part program to be completed by an audience discussion period which might focus on one or more of the following: family life, employee-employer relations, teacher-student relations, traffic safety, and the individual's emotional health. A guide for the discussion leader is provided with each print.

The film shows how Tom Finley, during a day of stress, reacts to his boss, his family, his closest friend, and to

other important people in his life. One important sequence concerns the influence of emotions on an automobile driver's competence.

Metropolitan Life Insurance Company, One Madison Ave., New York 10, N. Y., or 600 Stockton St., San Francisco, Calif. Free.

Annual Reports

"A Report to the President of the Federal Council on Aging" is the report of the first eight months' operation of this 13 federal department or agency council to coordinate activities of the federal government in the field of aging. The chief goal is the continuation of the older person in the economic, civic, and social life of the nation in the fullest possible way. The activities of the separate agencies and of the Council in behalf of older persons are reviewed as is new federal legislation.

The general recommendations of the report are brief: that the federal government continue its activities in employment, housing, income, education, and participation in community activities of older persons; that these federal activities can best be accomplished through the member departments or agencies of the Council; and that the Council itself remain an active coordinating mechanism without assuming operating functions.

The report is presumably available from the Federal Council on Aging, Louis H. Ravin, Secretary, Washington, D. C.

That planned and prepaid medical care increases the use of health service is suggested by the recently released 1955 statistical report of the Health Insurance Plan of Greater New York. However, even in this plan with a high proportion of subscribers receiving services, a major share of the service is utilized by a small proportion of the subscribers. Infants used twice as many physicians' services per individual as persons aged 65 and over. This may not be surprising, but there are many interesting and useful facts behind the figures. Health service planners may find stimuli to new lines of community action in the differences in use of health services between enrollees under family plans and under employee-only contracts. As might be expected, the former use more services.

Certainly, all those concerned with the relationship between medical care organization and the use of health services will want to browse through this brief, but competently put together report, and then read it carefully, challenged by the many questions it raises. It includes information not previously available about the use of HIP services. Paul Densen, D.Sc., director of HIP's Division of Research and Statistics and author of the report, would probably be happy to receive your request for a copy of the report and your answers to its questions. Health Insurance Plan, 625 Madison Ave., New York 22.

"Memorial Center, 1954–1956" is the two-year story of a great cancer center in New York City that as recently as 1946 was a single unit, Memorial Hospital. The Center now includes in addition the Sloan-Kettering Research Unit, the James Ewing City Cancer Hospital, the Strang Cancer Prevention Clinic, and a separate outpatient unit. In its two hospitals the Center cared for more than 10,000 patients in each of the two years. Its two outpatient clinics served nearly 500 patients a day.

The report of this more than nine million dollar annual operation, not including the city hospital, is in effect a summary of the stage at which cancer research has arrived. Many of the hopeful findings are reviewed as well as the research areas projected for the immediate future.

A round dozen of advances during the two-year period are reported, among them that nearly 16 per cent of patients with "hopelessly" advanced cervix cancer are still alive and well five years after treatment by a new radical surgical procedure. Other findings are that "natural defenses not found in the cancer patient have been shown to protect the well person against implanted cancer." A direct relationship between smoking, alone or in combination with heavy alcohol consumption, and the risk of developing cancer of the larynx or oral cavity is reported to have been shown. A new type of operation for breast cancer shows a higher survival rate than obtained by conventional means.

The report is a model of production with clear type, excellent arrangement of material, unusual illustrations using almost entirely bright green or blue-bird blue for color. Memorial Center for Cancer and Allied Diseases, 444 East 68th St., New York 21.

"Threshold to a Better Life" is the report of "how Planned Parenthood served America's families in 1956." An eight-page attractive folder, the report tells its story of more than 156,000 families served, largely in pictures. More than 13,000 young people used the marriage education and counseling services of the Federation, more than 9,000 sought the services of infertility and referral services.

Planned Parenthood Federation of America, 501 Madison Ave., New York 22, N. Y.

"Retrospect; Introspect; Prospect" is the 20-year report of the Calhoun County (Mich). Health Department. This summary is particularly significant because this department was organized as a unit of the Michigan Community Health Project of the W. K. Kellogg Foundation which supported it in large part. In 1944, for example, 57 per cent of the budget was met by the Foundation. By 1949 Foundation support was withdrawn and citizens now had the privilege, as the report puts it, of having the department "stand alone" and "progress in the orderly and efficient manner in keeping with the faith shown in the county through support by the Foundation." In spite of the increased demand for services and the decreasing value of the dollar, the per capita allocation for public health in 1955 was less than in 1945, the year the Foundation began reducing its support.

Another reason for the significance of this history is that during the period the separate health departments of Battle Creek and the county became integrated into a single county-wide department. This took place about 1944 when Hugh B. Robins, M.D., was the county health officer. He has presided over the department for all but the first two years of the 20-year history here reviewed.

Much of the material presented epitomizes the progress of health in the country generally. The country's population has increased nearly 40 per cent during the two decades, number of deaths have increased a bare nine per cent. The infant death rate has been nearly cut in half, the maternal death rate from seven to zero. Heart disease was the leading cause of death both at the beginning and the end of the period, cancer moved up from third to second in importance, diabetes from 10th to sixth place, arteriosclerosis from ninth to fifth, tuberculosis moved from eighth to 10th place, pneumonia from fifth to eighth, nephritis moved from sixth place entirely out of the 10 first, and suicide moved into ninth place.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Administrative Medicine: Transactions of the Fourth Conference, October 31, November 1 and 2, 1955—Edited by George S. Stevenson. New York: Josiah Macy, Jr. Foundation (16 West 46th St.), 1956. 251 pp. Price, $4.25.

Sponsored by the Josiah Macy, Jr. Foundation, this is the Fourth Conference on Administrative Medicine. Members of the panel, headed by Hugh R. Leavell, are representatives of the many disciplines that are concerned with the subject under discussion. Guests were present who have recent intensive experience in the subject discussed.

The chapter dealing with the "Measuring of Needs for Medical and Related Services," as carried on in the Hunterdon County (N.J.) Study, is especially recommended. Several chapters deal with the Health Insurance Program of Greater New York and these sections will interest persons interested in the measurement of quality of medical care. Similarly, the "Assessment of Quality of Services in the Boston Metropolitan Area" and the description of the "British Experience in Appraising Adequacy of Medical Care in the National Health Service" present the reader with problems of measurement. Evaluation as discussed in the chapter on "Assessing Effectiveness of Programs in Operation" adds little except to present the need for planned and not excessive evaluation of short-term objectives.

The reader is afforded an opportunity to sit in as a silent partner at a conference where informality prevails. By chance, the reviewer knows most of those who participated and, in reading the text with very little imagination, could transpose himself to a chair in the very room where the discussions took place. For health personnel who use interview technics or who plan community surveys or research studies this text will give them an insight into the many factors that must be considered in the development and evaluation of the results.

Quotes which deserve the reader's attention: (Page 35) ". . . it was obvious to all that about a half or three-fourths of the stated services rendered by the nurses and the social workers were similar."

(Page 75) ". . . most doctors prefer to practice good medicine if you teach them how, and also if they are watched."

(Page 87) ". . . there is also the tendency to play safe for one's own self and to play for ease. Whether the indications are for psychological exploration, the use of community agencies, the improvement of the milk supply, or some other activity that goes beyond past tradition, there is a tendency in both institutions and individuals to do nothing so as to avoid risks." "If things are going all right, don't stick your neck out by undertaking something else. I run into that again and again and again as a problem of administration."

(Page 90) ". . . medical education is a life program."

(Page 112) "In general when we talk about program evaluation, we must distinguish between the evaluation of the effectiveness of the program in attaining the major objectives or the ultimate goals, and evaluation which will exam-

ine these components and their effectiveness in the light of the immediate goal."

(Page 161) ". . . in the whole of science, value judgment enters into every single measurement . . ."

(Page 195) "We have become very conference-minded."

VLADO A. GETTING

The American Fluoridation Experiment—By F. B. Exner and G. L. Waldbott, edited by James Rorty. New York: Devin-Adair Co. (23 East 23rd St.), 1957. 277 pp. Price, $3.75.

This book is in three parts with a long introduction, four appendixes, a bibliography, and an index. It is the joint literary effort of three prominent enemies of water fluoridation.

Part 1 is the longest part and is a virtual reprinting of the articles by Fredrick B. Exner, M.D., which appeared in three issues of Northwest Medicine in 1955 (Vol. 54). Very little, if any, of the vilification and slander of investigators who support fluoridation present in the original articles has been removed from the current printing. Dr. Exner's writings give every evidence that he is an earnest and clever man who has given an enormous amount of his time to the reading of a large literature outside the field of his normal professional interests. He bends this material to his skillful attack on water fluoridation which he regards as an authoritarian evil in public health and medicine. He believes that the intake of fluoride ought to be strictly individualized and he attacks the methods and integrity of several investigators whose observations support the benefits and safety of fluoridation.

Part 2 by George L. Waldbott, M.D., an allergist, also appears in large part to be a rewriting of material which he has published in other places (e.g. Inter. Arch. Allergy and Applied Immunology, 7:70 (1955); Acta Medica Scand., 156:157 (1956). He describes patients who complained of a variety of bizarre symptoms affecting a large number of organ systems. These symptoms, attributed by Dr. Waldbott to the use of fluoridated water, were present with few or no objective signs of specific disease and included gastric distress, pain in the spine, paresthesias, flatulence, polydipsia, tinnitus, mental abberations, muscular weakness, etc. Rapid symptomatic cures were reported on withdrawal of fluoridated water and Dr. Waldbott attempts to discount the suggestion that his patients' complaints had a psychogenic basis. Dr. Waldbott also contributed a chapter of general attack on fluoridation, together with a review of his claims of censorship of antifluoridation information by medical and dental societies, the press, industries, and the Public Health Service.

Part 3 and the introduction were contributed by Mr. James Rorty, a journalist, who has written widely on medical and nutritional subjects. Little that is novel from the otherwise available antifluoridation literature is presented in these sections.

The appendixes consist of an attack upon the responses made by a Public Health Service officer to a questionnaire submitted by Mr. Rorty, a list of communities which have abandoned fluoridation, an essay by Mr. K. K. Paluev attacking the method of reporting dental decay reduction and a list of organizations against fluoridation.

W. D. ARMSTRONG

Straight to the Heart—A Personal Account of Thoughts and Feelings While Undergoing Heart Surgery—By George Lawton with a special supplement by Ethel Lawton. New York: International Universities Press (227 West 13th St.), 1957. 347 pp. Price, $5.00.

Having survived three successful operations, noncardiac, in the hands of

skillful surgeons and their staffs, this reviewer must acknowledge at the outset that he has read this amazing volume largely from a personal and provocative standpoint. Furthermore, he received it just three days before Time Magazine of March 25 came into his hands with the picture of Dr. Charles Bailey on the cover and eight pages of detailed description with remarkable kodacolor prints of heart surgery. Taking this all together we have a unique and absorbing description of the close relationship between clinical psychology and a skillful and successful operation on the heart.

George Lawton, Ph.D., has wisely not attempted to describe the technical details of heart surgery, entirely out of his field, but he does reveal in considerable detail with vivid descriptions what he went through mentally as only a well trained and experienced psychologist could do. In this he resembles a physician taking his own medicine, only in his case it is in the form of memories, fantasy, delusions, and hallucinations followed by slowly reconstructing himself as a delightful personality.

This volume is unique in its frankness and personal experiences both before and following a difficult heart operation. In its manner of presentation and analysis of serious conditions it holds one's attention. Criticism is brought to bear upon certain general practitioners of medicine and a few specialists who either made poor diagnoses, conducted limited examinations, or sought to make believe that nothing seriously was the matter with the patient's heart. The most critical chapter in the book is entitled "Who Killed Cock Robin." It is set up as a mock trial with the "Case of George Lawton vs. Doctors Ay, Bee, Cee, Dee, etc. . . ." who were charged with "Aiding and abetting homicide."

It would be wholesome for general practitioners of medicine, specialists in surgery, and psychiatrists to read this stimulating volume and come back if possible with rebuttal.

A supplement by Ethel Lawton, entitled "We've Joined the Living," gives a vivid description of what his wife suffered in facing the serious surgical operation on her husband's heart and the joy she experienced when it turned out with great success. She was able to portray incidents before and following the operation. She tells what she had learned about doctors and staff engaged in heart surgery and mentions a number of interesting cases which came to her attention. This led her to point out that "Here is an opportunity for a young psychotherapist in training, whether his background is in medicine, clinical psychology, or in social work, to gain experience and to perform a socially useful service."

George Lawton's concluding chapters on "Reborn," "My Second Chance," and "The Merry Heart" are filled with humorous anecdotes and incidents taking place in the hospital, set forth in language which one would expect only doctors and nurses to use. The 347 pages of this fascinating volume recall to this reviewer some of the early novels of Charles Dickens.

RICHARD ARTHUR BOLT

Radioactive Liquid Wastes—Continued Education Series No. 64. Ann Arbor, Mich.: University of Michigan, Publications Distribution Service (711 Maynard St.), 1956. 90 pp. Price, $3.00.

This publication's purpose is to present fundamental material on radiation, radioactive materials, and the nature of radioactive wastes in simplest terms. It represents a compilation of the manuscripts, together with photographs and description of demonstrations presented at an Inservice Training Course November 2–4, 1955. Participating authors

represented the Public Health Service, the Atomic Energy Commission, and the School of Public Health, University of Michigan.

Four main topics are considered: (1) The problem of Radioactive Waste Disposal. (2) Fundamental Concepts and Terminology. (3) Community Effects of Radioactive Wastes. (4) Implications for Community Planning.

Part one describes briefly the magnitude of present radioactive waste problems and estimates of the future. In addition, the proposed standards for protection against radiation are touched on. Part two comprises the majority of the pamphlet. The basic concepts of atomic structure, radioactivity, and the interaction of radiation with matter are discussed and amply illustrated. This discussion is of necessity quite elementary.

Part three is devoted primarily to the effects of radioactive pollution on various water users and on the waterworks industry in particular. Part four presents a background of the radiation protection history. The planning resources of the state and federal agencies have been outlined with suggestions designed to increase the competence level of public agencies.

JAMES G. TERRILL, JR.

Community Organization: Action and Inaction—By Floyd Hunter, Ruth C. Schaffer, and Cecil G. Sheps. Chapel Hill, N. C.: University of North Carolina Press, 1956. XVII plus 268 pp. Price, $5.00.

This book is an excellent companion piece to the senior author's earlier study of power and leadership presented several years ago in "Community Power Structure." This time the scene is not the South, but New England; and the report deals with a study conducted by a team from the Institute for Research in Social Science, University of North Carolina, in the city of Salem, Mass., as that community carried out a self-study of its health needs and of ways of meeting them. Actually, the self-study was undertaken at the suggestion of the research group, which proceeded to observe, record, and analyze what happened, how decisions were reached, action programs formulated and eventually carried out.

About half the book delineates the social organization of the community. The remainder is taken up with the organization of the self-study committee, how it went to work, the conflicts that arose in the course of its work, what it achieved, and where it failed. The authors give a fine picture of the power structure, and particularly of the persons in it who influence decisions while remaining in the background. This study is important as well because the data are constantly seen in relation to a framework of theory. Particularly useful are the comments by the authors on the possible limitations of the community self-study.

This book is excellent, and should be read by every health worker concerned with the community—and which of us is not? It will be particularly useful in working with students in schools of public health, medicine, nursing, and social work.

GEORGE ROSEN

Enzyme, Antigen and Virus—By Sir Macfarlane Burnet. New York: Cambridge University Press (32 East 57th St.), 1957. 193 pp. Price, $3.50.

The proteins of adaptive enzymes, of antibodies, and of viruses have in common that their formation is a process of provocation. Cells do not normally synthesize these proteins and do so only when exposed to an inducing substrate or to an antigen or to a virus. The study of these "pathological" processes has been most fruitful in clarifying our understanding of biosynthetic processes in general.

This monograph is mainly concerned

with the problem of how information is transmitted in the cell to make it capable of duplicating with incredible accuracy large molecular substances. The author applies in great detail the concept of "specific complementary patterns" to ribonucleic acids and proteins, two macromolecular compounds which appear to be interrelated in biosynthetic processes. He proposes that the metabolically rather stable deoxyribonucleic acids are the only patterns which are replicated directly, while the other macromolecular substances are formed and "informed" via a communication system of the "specific complementary pattern" type. The author visualizes that the deoxynucleic acids give their coded instructions to the metabolically more mobile ribonucleic acids which in turn transmit their information to the proteins.

The book is on the whole a masterly presentation. It is therefore particularly regrettable that the author, who by his own admission is not a biochemist, did not receive appropriate advice so as to avoid such mistaken notions as expressed, e.g., on page 22 regarding the chemistry of the nucleic acids.

Publications on protein synthesis are so numerous of late that they themselves have become suspect of being reproductive. It is to the credit of the vision of Sir Macfarlane Burnet that he succeeded in presenting such an excellent cross-section of the most stimulating current research. But more important than the discussion of the work of others are the stimulating and provocative original ideas expressed in this book. Burnet's writings have always had the property of an inducer, provoking others to think or even to experiment. His concepts of latent infections and, more recently, of the role of self-markers in antibody synthesis were proposed so far ahead of their time that they received, if any, only belated recognition.

As stated by the author, the impulse to write this book arose from an attempt to understand what was happening when influenza virus multiplies in its host cell. The vicinity of the laboratory can be felt throughout the book and it is hoped that it will find its way to many laboratory benches.

EFRAIM RACKER

Low-Fat Cookery—By Evelyn S. Stead and Gloria K. Warren. New York: Blakiston Division, McGraw-Hill (330 West 42nd St.), 1956. 184 pp. Price, $3.95.

A word of praise for this book does not imply that favor or disfavor is manifested in the rationale for fat restriction. That is a debate for other times and places. Simply let it be said that this is an excellent cookbook. The recipes will result in tasty dishes; considerable originality and imagination has been employed in developing the material. It seems unfortunate that 35 pages are devoted to listing the fat content of many foods. This could have been simplified by grouping certain foods which have negligible fat content, such as most fruits and vegetables. In addition, it is always preferable to list the composition of foods in the amounts which are usually consumed, otherwise a false impression is created as to the actual food value.

Another word of warning, fat and calories should not be used interchangeably. Fat is a source of calories, but its restriction does not necessarily imply a low-calorie diet, for proteins and carbohydrates are also sources of calories and must be regulated in amount in the planning of a low-calorie regime.

ELIZABETH K. CASO

Advances in Veterinary Science. Vol. II—By C. A. Brandly and E. L. Jungherr. New York: Academic Press (125 East 23rd St.), 1955. 410 pp. Price, $10.00, clothbound.

The preface well states the objectives of this text in the simple statement, "It

is planned to review the progress in the more active fields of research. . . ." This book is not a text in the strict interpretation of the term, but is rather a reference to be used in conjunction with a well established resource library. The textual material of each subject is good, but does not provide detailed or specific data, the chapter dealing with the epizootiology of virus diseases being the notable exception. The other chapters are restricted to a "who did what and when" type of presentation.

The contributors are all outstanding workers in their respective fields and have done an excellent job of reviewing recent advances. The book will be of great value to research, laboratory, public health workers, and teaching staffs; but its value to the average practitioner of veterinary medicine would be debatable. Specific diseases or groups of diseases are singled out for discussion and the bibliography at the end of each is a valuable compilation of reference material. MARTIN D. BAUM

Medicine in a Changing Society. Lectures to the Laity, No. XVIII—The New York Academy of Medicine, Iago Galdston, Editor. New York: International Universities Press (227 West 13th St.), 1957. 166 pp. Price, $3.00.

This book is primarily concerned with philosophy and research in mental health. The five sections offer varied points of view which combine into a comprehensive and interesting presentation of the subject.

In the first section Dr. Franz Alexander observes present-day attitudes toward adventure and security and poses important questions as to the meaning of the insistence upon personal security. In the next Dr. John A. Rose discusses parent-child relationships today and points out the danger of professional intervention being disruptive unless these relationships are respected. Dr. William Malamud, in the third section, contributes an excellent, logical, and comprehensible discussion of the manner in which organic factors affect personality functions. In the next Dr. W. Horsley Gantt describes experimental methods of studying neuroses in animals and offers suggestions as to the eventual development of predictive tests. In the final section Dr. Iago Galdston offers an excellent historical review of changing attitudes in medical science. In presenting his concept of comprehensive medicine he suggests that there is now evidence of a return to the care of the total person and the goal of encouraging health.

To those interested in medical science, this book truly offers too much food for thought to permit its being read lightly or casually. MABEL ROSS

How to Enjoy Good Health—Edited by Cyril Solomon and Brooks Roberts. New York: Random House (457 Madison Ave.), 1956. 240 pp. Price, $3.95.

A friend to whom the reviewer was describing this book remarked that having the volume handy in the library would be far superior to rummaging through stacks of old newspapers seeking a pertinent copy of This Week magazine. (This volume represents a compilation of "Good Health" articles appearing in that publication.) If one's Sunday paper includes the This Week supplement he probably will feel precisely like that as he reads the nearly six dozen articles on timely and timeless health subjects. He remembers having read some of them before. It pleases him that someone was thoughtful enough to do what he himself should have done—clip them out to file for future reference.

Here in readily available and readable form are found discussions, authorized by the American Medical Association, of some 70 health topics. Questions are

answered which are constantly being asked of physicians, nurses, educators (health and otherwise), parents—or just being asked. The answers come from 67 of the nation's top authorities.

To point up the caliber of the contributors one need only list a bare minimum of the authors and their subjects: Drs. William L. Benedict on the eye, J. Arthur Myers on the chest, Jonas E. Salk on the viruses, Paul D. White on the heart, and Maxwell M. Wintrobe on anemia. The introduction is written by George F. Lull, M.D., secretary-general manager of the American Medical Association.

A list of contributors, including the foregoing, should assure this book a place on the health-reference shelf of every library. All of us who are called upon to answer health questions on the subjects discussed would do well to check our stock answers against the ones used by recognized authorities.

MAX L. DURFEE

Five Hundred Over Sixty: A Community Survey on Aging—By Bernard Kutner, David Fanshel, Alice M. Togo, and Thomas S. Langner. New York: Russell Sage Foundation (505 Park Ave.), 1956. 345 pp. Price, $4.00.

Sponsored by the New York City Health Department, Cornell University, and the Russell Sage Foundation, this study reports the needs of old people in a district of New York City and appraises the health and welfare services available to them. For this investigation 500 people over the age of 60 were chosen by stratified area sampling in the Kips Bay-Yorkville Health District. This is one of New York's 30 health districts and, according to the 1950 census, had a population of 252,000, of whom 44,500 were over 60. This comparatively small area presents wide economic contrasts and has a somewhat higher proportion of foreign-born than New York City as a whole. Seventy per cent of the sample were foreign-born and another 17 per cent had foreign-born fathers. The data upon which the study is based were obtained by interviews employing a schedule covering from 160 to 230 items.

The authors describe numerous findings in relation to morale, disposition to use health services, housing, mental health, financial problems, leisure-time activities, and counseling and guidance. Generally, the authors emphasize that "the aged cannot be treated as a homogeneous, undifferentiated population," and thus they emphasize the heterogeneity of older people's needs, wants, and capabilities. Certain specific findings are not unexpected. For example, that having a remunerative job is associated more closely with higher morale than is being occupied with recreational diversions; that ethnic groups tend to differ in their concern about health and in the use of health services; or that some people cannot accept the fact that they are aging and avoid community agencies or services specialized for such a group. Other findings have somewhat greater novelty.

As far as any conceptual scheme is used to organize the data, the idea of social role and its loss may be regarded as the central organizing axis. Despite the rather sketchy theoretical framework, the volume contains numerous items of information that will interest anyone concerned with the aging and their problems. One practical result of this study has been the establishment of an Adult Counselling Center. Furthermore, there is a detailed discussion of programs for the aged which will be of help to all those concerned with community planning for those in this age group.

GEORGE ROSEN

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN FLUORIDATION EXPERIMENT, THE. F. B. Exner and G. L. Waldbott. New York: Devin-Adair, 1957. 277 pp. Price, $3.75.

ANALYTICAL MICROSCOPY. T. E. Wallis (2nd ed.). Boston, Mass.: Medical Book Department, Little, Brown, 1957. 215 pp. Price, $5.50.

ASPECTS OF RIVER POLLUTION. Louis Klein. New York: Academic Press, 1957. 621 pp. Price, $14.50.

BASIC NUTRITION. E. W. McHenry. Philadelphia, Pa.: Lippincott, 1957. 389 pp. Price, $5.00.

BEKAMPFUNG DER SILIKOSE. FORSCHUNGSARBEITEN, BAND II. HERAUSGEGEBEN VON BERGASSESSOR A. D. Fritz Lange. Essen 1956. Verlag Gluckauf GmbH. 212 Seiten mit 125 Abbildungen und Zahlentafeln. Kinstleder 24.—DM.

CARICATURE OF LOVE, THE. Hervey Cleckley. New York: Ronald Press, 1957. 319 pp. Price, $6.50.

CLOSED RANKS. AN EXPERIMENT IN MENTAL HEALTH EDUCATION. Elaine and John Cumming. Cambridge, Mass.: Harvard University Press, 1957. 192 pp. Price, $3.50.

DOCTOR COURAGEOUS. THE STORY OF DR. GRANTLY DICK READ. A. Noyes Thomas. New York: Harper, 1957. 218 pp. Price, $3.75.

DYNAMICS OF INTERVIEWING—THEORY, TECHNIQUE, AND CASES. Robert L. Kahn and Charles F. Cannell. New York: Wiley, 1957. 368 pp. Price, $7.75.

FAMILY IN PSYCHOTHERAPY, THE. C. F. Midelfort. New York: McGraw-Hill, 1957. 203 pp. Price, $6.50.

HANDBOOK ON PUBLIC HEALTH RESPONSIBILITIES IN CALIFORNIA, A. STATE-LOCAL-JOINT. Prepared by the State Department of Public Health in collaboration with the California Conference of Local Health Officers. Berkeley, Calif.: State Department of Public Health, 1957. 61 pp.

HEALTH YEARBOOK 1956. Compiled by Oliver E. Byrd. Stanford, Calif.: Stanford University Press, 1957. 278 pp. Price, $5.00.

HEALTH AND HYGIENE FOR THE MODERN WOMAN. Leonard H. Biskind. New York: Harper, 1957. 219 pp. Price, $3.75.

HEALTH AND MEDICAL CARE IN NEW YORK CITY. A REPORT BY THE COMMITTEE FOR THE SPECIAL RESEARCH PROJECT IN THE HEALTH INSURANCE PLAN OF GREATER NEW YORK. A Commonwealth Fund Book. Cambridge, Mass.: Harvard University Press, 1957. 275 pp. Price, $7.50.

HEALTH MANPOWER CHART BOOK. U. S. Department of Health, Education, and Welfare, PHS. Washington, D. C.: Gov. Ptg. Office, 57 pp. Price, $.25.

HEALTH SERVICES FOR AMERICAN INDIANS. U. S. Department of Health, Education, and Welfare, PHS, Division of Public Health Methods. Washington, D. C.: Gov. Ptg. Office, 1957. 344 pp. Price, $1.75.

INDUSTRIAL TOXICOLOGY. Lawrence T. Fairhall (2nd ed.). Baltimore, Md.: Williams and Wilkins, 1957. 376 pp. Price, $10.00.

HEATING VENTILATING AIR CONDITIONING GUIDE 1957 (35th ed.). New York: American Society of Heating and Air Conditioning Engineers, 1957. 520 pp. Price, $12.00.

INTERNATIONAL HEALTH. A REPORT OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES. Washington, D. C.: Gov. Ptg. Office, 1957. 78 pp.

MASSACHUSETTS TB FACTS AND FIGURES FOR 1955. Prepared by Royal A. Elfast, Jr. Boston, Mass.: Massachusetts Department of Public Health, 1957. 33 pp.

MEDICAL CARE FOR WELFARE RECIPIENTS—BASIC PROBLEMS. 83 pp. Price, $1.75.

MEDICAL CARE FOR WELFARE RECIPIENTS—STATE PROGRAMS. 113 pp. Price, $2.00. Margaret Greenfield. Berkeley, Calif.: Bureau of Public Administration, University of California, 1957.

MUNICIPAL YEAR BOOK, 1957, THE. Orin F. Nolting and David S. Arnold, editors. Chicago, Ill.: International City Managers' Association, 1957. 581 pp. Price, $10.00.

NATIONAL TUBERCULOSIS ASSOCIATION 1904–1954. Richard Harrison Shryock. New York: National Tuberculosis Association, 1957. 342 pp. Price, $3.50.

NATURE AND TRANSMISSION OF THE GENETIC AND CULTURAL CHARACTERISTICS OF HUMAN POPULATIONS, THE. Papers Presented at the 1956 Annual Conference of the Milbank Memorial Fund. New York: Milbank Memorial Fund, 1957. 143 pp. Price, $1.00.

PRACTICAL CLINICAL PSYCHIATRY. Jack R. Ewalt; Edward A. Strecker; and Franklin G. Ebaugh (8th ed.). New York: McGraw-Hill, 1957. 457 pp. Price, $8.00.

PRINCIPLES OF HEREDITY, THE. Lawrence H. Snyder, Sc.D., and Paul R. Davis. Boston, Mass.: Heath, 1957. 507 pp. Price, $6.25.

PROGRAMS FOR COMMUNITY MENTAL HEALTH. PAPERS PRESENTED AT THE 1956 ANNUAL CONFERENCE OF THE MILBANK MEMORIAL FUND. New York: Milbank Memorial Fund, 1957. 224 pp. Price, $2.00.

PSYCHIATRIC RESEARCH REPORTS NO. 7. STRESS; EXPERIMENTAL PSYCHOLOGY; CHILD PSYCHIATRY. Washington, D. C.: American Psychiatric Association, 1957. 88 pp. Price, $2.00.

ROLE RELATIONS IN THE MENTAL HEALTH PROFESSIONS. Alvin Zander; Arthur R. Cohen; and Ezra Stotland. Ann Arbor, Mich.: Research Center for Group Dynamics, Institute for Social Research, University of Michigan, 1957. 211 pp. Price, $4.50.

STUDY GROUP ON ATHEROSCLEROSIS AND ISCHAEMIC HEART DISEASE. World Health Organization Technical Report Series, No. 117. New York: Columbia University Press, 1957. 40 pp. Price, $.30.

STUDY GROUP ON ECOLOGY OF INTERMEDIATE SNAIL HOSTS OF BILHARZIASIS. World Health Organization Technical Report Series No. 120. New York: Columbia University Press, 1957. 38 pp. Price, $.30.

TEACHING LABORATORY OF PREVENTIVE MEDICINE, THE. FAMILY STUDY AND CARE PROGRAMS IN MEDICAL EDUCATION. Proceedings of Annual Meeting, 1956. Brooklyn, N. Y.: State University College of Medicine, c/o Duncan W. Clark, 1956.

UNSETTLED CHILDREN AND THEIR FAMILIES. D. H. Stott. New York: Philosophical Library, 1957. 240 pp. Price, $6.00.

VERY MUCH ALIVE—THE STORY OF A PARAPLEGIC. Terry McAdam. Boston, Mass.: Houghton Mifflin, 1955. 146 pp. Price, $3.00.

VIRUSES IN SEARCH OF DISEASE. Robert J. Huebner, et al. Vol. 67, Art. 8. pp. 209–446. New York: Annals of the New York Academy of Sciences. Price, $5.00.

A Selected Public Health Bibliography with Annotations

It Worked—British experience with their own poliomyelitis vaccine (with a Brunenders strain substituted for our Mahoney strain) is reported in extensive detail. The British version conferred protection against the Type I infections then prevailing. "If the small numbers available are taken at the face value the apparent protection conferred was very similar to that observed in the 1954 trial in the United States." So concludes the report.

ANON. The Assessment of the Brtish Vaccine Against Poliomyelitis. Brit. M. J. 5030: 1271 (June 1), 1957.

British School Children—This newly dressed-up journal of the British health services "proposes to publish each year two or three special numbers dealing with particular aspects of public health work." So, on the 50th anniversary of the school health program, that area was "chosen to open the ball," and a remarkably interesting group of papers (for us foreigners at least) is the result. School medical inspection, the history of the service, changing attitudes toward the handicapped, inservice training and research, all are discussed at the differing angle of approach that marks their, and our, social philosophy.

ANON. The School Health Service (and five related papers). Pub. Health 71, 2:41 (May), 1957.

This You May Know—Fly control depends upon adequate environmental

care as well as the use of the right insecticide. Chemical sprays and bait technics won't work alone: control calls for insect exclusion and top-flight sanitation. "Every trick in the book" is needed for successful fly eradication.

BJORNSON, B. F. Chemical Developments in Fly Control. Modern San. 9, 5:15 (May), 1957.

It Began in 1908—Throughout the years you have probably read, or heard about, most of what appears in this readable review of the long story of poliomyelitis vaccine—its backgrounds, trials and errors, frustrations, and eventual successes. Even so you will find this new account revealing and quite possibly useful.

BOYD, T. E. How the Present Poliomyelitis Vaccine Was Discovered. Am. J. Nursing 57, 6:722 (June), 1957.

Toward Diabetes Control—There may be public health implications in this medical note. Experience with a small group of patients indicates that most adults may attain metabolic control of diabetes with tolbutamine (taken by mouth). So-called juvenile diabetes did not respond satisfactorily. Adults who could not completely give up insulin were able to get along with smaller doses.

BRENEMAN, J. C. Clinical Use of Tolbutamine (Orinase) in Office and Home Care of Diabetics. J.A.M.A. 164, 3:627 (June 8), 1957.

On the Rio Grande—One of the largest outbreaks of (St. Louis) encephalitis ever recorded is covered comprehensively in four papers, representing the epidemiologic, clinical, pathologic, entomologic, laboratory, and vector control phases. Culex quinquefasciatus was the vector.

CHIN, D. H., et al. St. Louis Encephalitis in Hidalgo County, Texas (four papers). Pub. Health Rep. 72, 6:512 (June), 1957.

31 Varieties—Reported here are the findings of a country-wide (questionnaire) survey seeking information on the origins, purposes, organizational set-ups, and administrative problems of home-care medical programs—31 in all.

COUNCIL ON MEDICAL SERVICE. Organized "Medical Care Programs," in the United States. J.A.M.A. 164, 7:298 (May 18), 1957.

Salt vs. Blood Pressure—This item is about a medical subject and so has little business in these columns, but it is possible you may have a direct concern in the statistics it presents—which sustain the hypothesis that the level of sodium chloride intake is a primary etiologic factor in essential hypertension.

DAHL, L. K., and LOVE, R. A. Etiologic Role of Sodium Chloride Intake in Essential Hypertension in Humans. J.A.M.A. 164, 4:397 (May 25), 1957.

It Can (and Did) Happen Here—In convincing epidemiologic detail outbreaks of syphilis and gonorrhea in a small manufacturing city are dramatically traced. What was learned? Whether the ever-present reservoir of infection will increase or decrease depends upon sexual mores and the efficacy of the health services. If sexual habits continue as they are at present, similar overflowings from the reservoir are bound to occur. How far they will flow will depend primarily on the alertness of the general practitioners of the community.

FIUMARA, N. J., et al. An Outbreak of Gonorrhea and Early Syphilis in Massachusetts. New England J. Med. 256, 21:982 (May 23), 1957.

As You Would Suppose—In hot regions children drink more water than those who live in chillier climes. A recommended scale of optimum fluoride concentration for public water supplies (ranging from 0.7 to 1.2 ppm) is based upon water drinking habits.

GALAGAN, D. J., et al. Climate and Fluid Intake (and) Determining Optimum Fluoride Concentrations. Pub. Health Rep. 72, 6:484 (June), 1957.

Knowing-Doing—"Millions of people die prematurely because of a failure to put knowledge to work through strong government and voluntary public health programs. We suffer because the public health movement is not as strong as its knowledge and techniques. The mental health movement, in contrast, is stronger than its knowledge. There is a readiness for mental health programs . . . capable of mobilizing greater resources than we need. . . ." Closely scrutinized here are the ways that the basic science of preventive psychiatry, epidemiology, can produce the knowledge that mental health needs to build upon.

GRUENBERG, E. M. Epidemiology of Mental Disorders. Milbank Mem. Fund Quart. 5, 2:107 (Apr.), 1957.

New Viruses—A few words about a lot of viruses leave one with an unsettling picture of our present knowledge of these elusive creatures and the continuing lacks in the said knowledge. The story does create, however, an impressive regard for the temerity of the researchers who dedicate their professional careers to this increasing complex area of public health practice.

HUEBNER, R. S. The Implications of Recent Viral Studies. Pub. Health Rep. 72, 5:377 (May), 1957.

The Frail Sex—Why have not men profited to the same extent as women from bettering living conditions? What might help to prolong their lives to the same extent as women? Perinatal and infant mortality differentials are due to biologic rather than sociocultural factors. An answer to the question of influences that might mold adult experience was sought in the longevity of the sexes in Roman Catholic teaching Brotherhoods and Sisterhoods (dissociated from hospitals). Findings suggest that biologic factors continue more important among adults than sociocultural and that the latter play only an unimportant part in the differentials. This phenomenon is discussed provocatively.

MADIGAN, F. C. Are Sex Mortality Differentials Biologically Caused? Milbank Mem. Fund Quart. 35, 2:202 (Apr.), 1957.

Preventive Medicine — Three timely contributions to a meeting of the American College of Preventive Medicine are called to your attention. The first, reviewing current treatments for tuberculosis tells, among other things, of the studies testing the prophylactic value of isoniazid. The second reminds us sharply of the presumably unused contributions the social sciences might make to public health. The last tells briefly what the army is doing to protect personnel from unnecessary radiation.

PAYNE, R., et al. Chemotherapy of Tuberculosis: Progress and Promise (and two companion papers). Pub. Health Rep. 72, 5:412 (May), 1957.

More About Teamwork—At the halfway mark three community researches (in Winona, Minn.; Washington Co., Md.; and San Mateo, Calif.) report statistical findings quite like those of the famous St. Paul Study. Two kinds of families are emerging: (1) the dependent and disabled—mostly adults; and (2) those with disordered behavior—mostly involving children. "The indication for improvement in the problem status of these extremely disorganized families is greater than anticipated."

ROBINSON, M. O. Community-Wide Planning for Family Health and Welfare. Marriage and Family Living 19, 2:198 (May), 1957.

Medical Rarity?—Each year fewer and fewer doctors have ever seen a case of smallpox while those who have grow less familiar with their memory of early experience. There have been some recent epidemics, so this presentation, designed to raise the general practi-

tioner's threshold of suspicion, may yet prove a highly useful public health document.

ROGERS, K. D., and HARMUTH, A. Y. Is It Smallpox? GP 15:91–94 (June), 1957.

Club Behind the Door—"The question, still current, of whether uniform ion concentrations can be maintained in public water supplies can be answered in the affirmative." Of course, you will want to have at your hand the evidence that follows this opening statement.

TAYLOR, F. B. Uniformity of Fluoride Ion Concentrations in Newburgh, N. Y., Distribution System. J. Am. Water Works A. 49, 5:512 (May), 1957.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publication in which they appeared; the addresses are furnished for your convenience.

Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.
Brit. M. J. (British Medical Association House), 19 Tavistock Square, London W.C. 1, England.
GP (General Practitioner), American Academy of General Practice, Broadway at 34th St., Kansas City 2, Mo.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.
J. Am. Water Works A. (Journal of the American Water Works Association), 2 Park Ave., New York 16, N. Y.
Milbank Mem. Fund Quart. (The Milbank Memorial Fund Quarterly), 40 Wall St., New York, N. Y.
Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.
New England J. Med. (New England Journal of Medicine), Massachusetts Medical Society, 8 The Fenway, Boston 15, Mass.
Pub. Health (Public Health), Society of Medical Officers of Health, Tavistock House, Tavistock Sq., London, W.C. 1, England.
Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Mississippi Breaks Ground

On July 26 ground-breaking ceremonies took place in Jackson, Miss., for the Felix J. Underwood State Board of Health Building located on North State Street at Stadium Drive. This building will honor Dr. Underwood who since 1924 has been the state health officer.

Association News

EIGHTY-FIFTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
CLEVELAND, OHIO — NOVEMBER 11–15, 1957

Hotel Reservation Form Appears in April and May Issues

Resolutions Committee Appointed

John W. Knutson, D.D.S., President, announces the following appointments to the Resolutions Committee to serve prior to and during the Annual Meeting. Ruth R. Puffer, Dr.P.H., Pan American Sanitary Bureau, Washington, D. C., chairman:

Captain Robert W. Babione, USN
Pearl Bierman
Franklin C. Bing, Ph.D.
Betty Bond, Ph.D.
Antonio Ciocco, D.Sc.
Edward Davens, M.D.
Henry A. Holle, M.D.
John A. Logan, D.Sc.
Miriam Sachs, M.D.
Charles E. Smith, M.D.
David F. Striffler, D.D.S.

The committee is ready to receive resolutions now so that they can be given deliberate consideration. Copies should be sent either directly to Dr. Puffer, to any other member of the Resolutions Committee, or to the Association offices.

Keeping Standard Methods Up to Date

The three sponsors of "Standard Methods for the Examination of Water, Sewage and Industrial Wastes"—the American Public Health Association, the American Water Works Association, the Federation of Sewage and Industrial Wastes Association—have agreed on a policy of publishing new methods that may be under consideration. By this policy the proposed method will be published in the journal of the organization having prime responsibility for preparation of such methods, while the journals of the other two sponsors will carry a reference note. Comments and suggestions are invited and should be directed to any one of the three sponsoring organizations, preferably to the one primarily responsible for the method.

The August, 1957, issue of the Journal of the American Water Works Association proposes two new methods for detecting methane, the "combustible gas indicator method" and the "orsat method." American Water Works Association, 2 Park Avenue, New York 16.

Medical Care Section Regional Meet

The Medical Care Section of the American Public Health Association met in New York City on May 8, 1957, with about 40 members and guests present. Walter J. Lear, M.D., associate medical director, Health Insurance Plan of Greater New York, and membership secretary, New York Regional group, chaired the meeting.

Professor Wilbur Cohen of the University of Michigan presented a summary of the recent changes in the Federal Social Security Law and discussed possible future changes. A spirited and provocative discussion was carried on by those present who represented labor, industry, commercial insurance companies, voluntary insurance companies, and the medical profession. One of the major issues was how to provide health insurance coverage for the older age group of the population.

News of Affiliated Societies and Branches

APHA AFFILIATED SOCIETIES AND BRANCHES

Society and Secretary

ARIZONA PUBLIC HEALTH ASSOCIATION, Goldie Gold, Maricopa County Health Dept., Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Virginia M. Erwin, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Emanuel H. Pearl, 2220 Moorpark Ave., San Jose 28
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Byron O. Mork, M.D., University of California at Los Angeles, Los Angeles
COLORADO PUBLIC HEALTH ASSOCIATION, Margaret D. Lewis, 659 Cherokee St., Denver
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Mrs. Claire Reinhardt, 310 Cedar St., New Haven
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, San Rafael 1170, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta
IDAHO PUBLIC HEALTH ASSOCIATION, Mrs. D. W. McDougal, P. O. Box 563, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Hester Beth Bland, 1330 W. Michigan St., Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Capitol, Topeka
LOUISIANA PUBLIC HEALTH ASSOCIATION, Mrs. Lucille Sawyer, Shreveport
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Emma Wright, Box 811, Harve
NEBRASKA PUBLIC HEALTH ASSOCIATION, Matilda McIntire, M.D., Omaha-Douglas County Health Dept., Omaha
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N. E., Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Joseph Kadish, 164 W. 174th St.
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mary C. Egan, New York State Department of Health, Albany, N. Y.
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Betty E. Briggs, State Board of Health, Raleigh
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Barbara Kahn, State Board of Health, Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Margarita Martinez, Apartado 211, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Louis E. Remily, State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, H. E. Drumwright, City Health Dept., Dallas
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 2088, Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Kathleen Burwell, R.N., State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Harry M. Huff, State Dept. of Health, Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
SOUTHERN BRANCH, A.P.H.A., Mary Irene Cummins, Box 323, Harriman, Tenn.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

Louisiana Meets in a Flood

While the Red and the Sabine Rivers were inundating 65,000 acres of inhabited farmland, the Louisiana Public Health Association was holding a panel session on Planning for Disaster Control. Administration, management of casualties, nursing and food services, sanitary problems, and the problem of insecticides were discussed. This session was a part of the 1957 annual meeting of the Louisiana association in Alexandria on May 2 and 3.

In addition to this general session one half day was devoted to meetings of each of six sections. A new experiment was a meeting for wives and visitors who were given the opportunity to organize a section. At this meeting Ben Freedman, M.D., director of the state's training center discussed public health in the state, and Margaret C. Moore,

state director of nutrition, pictured a typical public health program.

The report of the retiring president, Margaret C. Moore, chief, Nutrition Section, State Department of Health, indicated a paid up membership of 725, a gain of more than 50 per cent during the year. Registration at the 1957 meeting was 25 per cent larger than in 1956. Also reported by the president was the completion of name plates for gift books that are to be presented alternately to the libraries of the Tulane and Louisiana State University Schools of Medicine in honor of deceased members. Ten books have now been divided between the two schools.

The Louisiana group initiated two new awards. The Dr. Felix Formento Awards for meritorious contribution on behalf of public health in Louisiana, in honor of the founder of the first state bacteriological laboratory and the 1892 president of the American Public Health Association, were presented to George Perry Eastman of the Auto-Chlor Company and John J. Holtgreve, past president of the Jefferson Parish Policy Jury. The second new award—the Dr. Edward Hall Barton Memorial Award for significant achievement in research, scholarship, or outstanding pioneer work in public health, was won by George H. Hauser, M.D., state director of laboratories, "who has been a potent force in the health department for more than 40 years."

The second annual Agnes Morris Memorial Awards for "many years of loyal and diligent service to the people of Louisiana in the field of public health" were given to 12 employees of state or local health departments, one each to a health officer, nurse, entomologist, and messenger, two sanitarians, and three each to secretaries and laboratory technicians.

The seventh annual Axson-Choppin Award in honor of the first two state health officers was presented to Clarence Webb, M.D., practicing physician of Shreveport. Also in its seventh year is the C. B. White Memorial Award "for outstanding service to public health by a public health worker," which was presented jointly to H. N. Barnett, M.D., director of the Bossier Parish Health Department, and Lucile Godelfer, state laboratory technician. To top this spate of awards the State Board of Health presented 20-year service pins to 69 employees of the State Health Department.

Officers elected are:

President: Velma Brusse, records consultant, St. Landry Parish Health Department and retiring secretary, LPHA
Vice-Presidents: Kendrick Taylor, M.D., director, Alexandria-Rapides Parish Health Unit; Bickham C. Pardue, Baton Rouge
Secretary: Lucille Sawyer, Shreveport
Treasurer: L. C. Santana, New Orleans.

Nebraska Meets with Middle States

The Middle States and the Nebraska Public Health Associations met jointly in Omaha on April 24–26. At the first general session the keynote address by the retiring president, John D. Porterfield, M.D., Assistant Surgeon General, on Healthier Senior Citizens was read by Harald Graning, M.D., medical director, Chicago office of the Public Health Service.

At another general session, O. K. Sagen, Ph.D., of the National Health Survey Program, discussed some of the methods to be used in the survey. Herman Bundesen, M.D., president, Chicago Board of Health, reported on some of the "Lessons Learned in the Chicago Polio Outbreak."

There were three half-day meetings of each of six sections. Here were reported a self-survey of Lynn County, Kans., relating to problems of the chronically ill and the aged. One joint session of the Nursing and the Maternal and Child Care Sections was devoted to Alcoholism as a Health Problem. Here

there were, among others, representatives of Alcoholics Anonymous who told something of the genesis of AA and its growth—two persons 20 years ago, 200,000 members currently. At the luncheon of the Nursing Section open to everyone, Pearl McIver, R.N., spoke on "What's New?" and was made the first Honorary Member of the Middle States Association.

Other topics discussed by the various sections were accident prevention, agricultural health programs, mental health and rehabilitation, water supply, and pollution abatement.

The following officers of the Middle States Association were elected: (The Nebraska Association's officers have not been reported).

President: Leonard C. Murray, Ph.D., director, Division of Public Health Education, Iowa Department of Health, Des Moines
President-Elect: Fred Long, M.D., director, Peoria (Ill.) Department of Health
Vice-President: A. C. Offutt, M.D., director, State Department of Health, Indianapolis
Secretary-Treasurer: Ralph Kuhli, assistant director, Home Safety Division, National Safety Council, Chicago.

NOTE: Allan Filek, M.D., director of local health services, Wisconsin State Department of Health, has written a detailed story of this meeting in the Summer (June 5) issue of the Wisconsin State Board of Health News Letter. It would undoubtedly be available to readers of this Journal.

South Carolina's 34th Meeting

The South Carolina Public Health Association held its 34th annual meeting at Myrtle Beach, May 9–11, J. Tennent Hane, administrator and sanitation consultant, Calhoun County Health Department, president, presiding. The theme of the meeting was, "The Changing South Carolina." A total of 403 delegates registered. Edward Davens, M.D., director, Maryland State Health Department, gave the keynote address in "Is Public Health in Tune with the Changing South Carolina?", drawing liberally on the discussion of the future of public health given in the APHA Task Force report.

Three general sessions and two meetings of each section were held. A reaffirmation of the society's approval of the addition of fluorides to drinking waters as a means for control of caries was made. A memorial library, to be housed with the State Health Department library, was established with appropriations for the first 25 volumes. A public health volume dedicated to the memory of each past and future deceased member of the SCPHA will make up the library.

Officers for the new year are:

President—Somers B. Pringle, administrator and sanitation consultant, Beaufort County Health Department
President-Elect—C. E. Ballard, M.D., director, Oconee and Pickens Counties Health Department
Vice-President—Elizabeth Davis, health education consultant, State Health Department
Secretary—Laura M. DeMarse, Personnel Section, State Health Department
Treasurer—Cecil C. Seigler, director, Finance Section, State Health Department
Representative to the APHA Governing Council—G. S. T. Peeples, M.D., state health officer

Francis B. Elder, engineering associate, APHA, represented the Association.

Indiana Focuses on Prevention

Prevention was the keynote of the 11th annual meeting of the Indiana Public Health Association in Indianapolis, May 9–10, attended by more than 300 persons. The new areas of prevention were spotlighted in an opening address by Assistant Surgeon General John D. Porterfield. Home accidents, the mentally ill, food additives, viruses, radiation exposures, and alcoholism were among the subjects of the subsequent symposium and general session on new areas of prevention.

The annual award for outstanding service was presented to W. W. Patty, Ph.D., retiring dean, Indiana University School of Health, Physical Education, and Recreation.

Rollis Weesner was succeeded in the presidency by Betty Malinka. Other officers elected are:

President-Elect: Robert Yoho, director, Division of Health Education, State Board of Health, Indianapolis
Vice-President: Cecilia Schuck, Ph.D., associate professor of nutrition, School of Health Economics, Purdue University, West Lafayette
Secretary: Hester Beth Bland, health educator, State Board of Health
Treasurer: Samuel H. Hopper, Ph.D., professor, Department of Public Health, Indiana University Medical Center, Indianapolis.

New York City Will Do It Again

In this section of the March Journal, it was reported that the Public Health Association of New York City planned to conduct a series of area group meetings to explore local health problems of mutual interest. Six groups each met six times during the spring in four boroughs of New York City to discuss "Where Are We Going in Public Health?" with special reference to the particular area's community health problems.

William C. Spring, M.D., re-elected vice-president of the City Association, cited these accomplishments to over 100 members at the annual meeting on June 12:

Participants involved one-third of the membership.

Four groups obtained a good cross-section representation of disciplines.

There was "reasonable success" in the exploration of mutual problems although little progress in attacking community health problems was made.

The small group discussions provided splendid opportunity for getting acquainted.

Dr. Spring further concluded that although these meetings had certainly affected neither the morbidity nor the mortality rate, they had stirred considerable interest among members, were highly worth while for the participants and discussion leaders, and had pointed the way to a more ambitious program next year.

The top annual award of the Association was presented at this meeting to Harry Raybin for "zeal" and "distinguished achievement" as technical director of the Poison Control Center in New York City.

Eight other citations were presented to members for outstanding service in their fields: Mildred Einhouse, Nursing; Guido Crocetti, Mental Health; Emily Lydon, Education; Margaret M. Connor, Nutrition; Anna D. Reynolds, Laboratory Services; John Eisen, Environmental Sanitation; Sara Grey, D.D.S., Dental Health; and Harry Merkatz, M.D., Medicine.

The officers who were re-elected for the coming year are:

President: Samuel W. Dooley, M.D., executive director, National Cancer Foundation
Vice-President: William C. Spring, M.D., professor of public health practice, Columbia University School of Public Health and Administrative Medicine
Secretary-Treasurer: Joseph Kadish, Ed.D., senior health educator, Health Insurance Plan of Greater New York.

Western Branch in Four-Day Meeting

The Western Branch of the APHA held its 24th Annual Meeting in Long Beach, Calif., May 29–June 1. Attendance was approximately 860. The first day was devoted to meetings of each of the six sections. Such topics as Environmental Aspects of the Rapid Growth in the Far Western States, Farm Labor Camps, Disaster Planning, and "Suburbanitis" were discussed by the Sanitation Section, meeting jointly with the California Association of Sanitarians.

The Industrial Hygiene Section concerned itself with the plastics industry and its toxic hazards, disaster preparedness, accidents, air pollution, and radiation exposure. At its dinner meeting, Giles S. Hall, personnel director, Consolidated Electro Dynamics Corporation, speaking on "Management Looks at the Widening Horizons in Occupational Health," took cognizance of the public health interest in and contribution to industrial health.

The fatty acids and nutrition in relation to atherosclerosis, irradiated food, chemicals in food, and nutrition education were among the concerns of the Food and Nutrition Section. Among the items of a very full day's program of the VD Section was a paper by Joseph Portnoy, Ph.D., immunoserologist of the VD Experimental Laboratory, University of North Carolina, describing the experience with the new rapid screening syphilis test—Treponema pallidum complement-fixation test.

In the five general sessions heart disease as a responsibility of the health department was discussed by James Watt, M.D., director of the National Heart Institute; by Lester Breslow, M.D., chief, Bureau of Chronic Diseases, California State Department; and by a practicing physician of Los Angeles, Wallace Frasher, Jr., M.D. At the same session John Knutson, D.D.S., President, APHA, discussed the progress being made in carrying out the recommendations of the Task Force and the responsibilities of the Western Branch in this progress.

At a second general session, "Who's Sick? How Can We Find Out?", the California and National Health Surveys and their methods were described, as well as Mental Health Surveys.

Poison Control Centers, Traineeship Programs, and Nutrition in Relation to an Aging Population were the concern of one general session. A fourth general session concerned itself with migratory workers' programs both in a California County and in Mexico in relation to contract labor.

At the banquet following the second general session, the speaker was Sir Andrew Davidson, former chief, Scottish Ministry of Health. Here also the Samuel J. Crumbine Awards of the Public Health Committee, Paper Cup and Container Institute, were presented to the San Jose Health Department for "outstanding achievement in the development of a program of eating and drinking sanitation" and to the San Diego Department for "outstanding achievement in the development of a comprehensive program of environmental sanitation." The eighth annual John J. Sippy Award was given to Curtiss M. Everts, sanitary engineer, Oregon State Board of Health, and chairman of the Conference of State Sanitary Engineers, who had recently been on leave with the Public Health Service as acting chief, Construction Grant Section, Supply and Water Pollution Control Program. Presentation was made by Earle T. Dewey, M.D., assistant medical director, Metropolitan Life Insurance Company, San Francisco office.

The final general session was on Public Health Meets the Press. Here the APHA team that visited numerous state affiliates as well as the Western Branch were subjected to searching questions by five press representatives from as many California newspapers. The APHA team included President John Knutson, D.D.S.; Reginald M. Atwater, M.D., executive secretary; Sir Andrew Davidson; Howard Ennes, director, Bureau of Public Health, Equitable Life Assurance Society of the United States; and James Watt, M.D.

A. Harry Bliss, M.P.H., chairman, Department of Public Health and associate professor of public health, University of California, Los Angeles, was

succeeded in the presidency by G. R. F. Elliot, M.D., assistant provincial health officer, British Columbia Department of Health and Welfare. Amy L. Darter, supervising bacteriologist, California State Department of Health, was re-elected secretary for the fifth consecutive year.

The program was under the direction of L. G. Goerke, M.D., professor of public health, University of California, Los Angeles.

Occupational Skin Problems

A third biennial course in Occupational Skin Problems will be given at the Institute of Industrial Health, University of Cincinnati, October 28–November 1, 1957. Presented by the Department of Preventive Medicine and Industrial Health, the Occupational Health Program of the Public Health Service and the university's Department of Dermatology will collaborate. The objective is to give physicians a greater understanding of cutaneous problems of occupational origin.

Etiology, diagnostic evaluation, and treatment of occupational dermatoses, as well as specific measures for prevention and control of these problems, current concepts regarding cutaneous, cancer, allergic reactions, and medico-legal problems will be discussed.

Early application is advised since attendance will be limited. Application blanks from the Secretary, Institute of Industrial Health, Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

APHA membership application blank on page XXV

Employment Service

Annual Meeting Employment Services

An employment center will be located in the Scientific Exhibit area at the 85th Annual Meeting. It will be sponsored by the Nurse and Medical Placement Center of the New York State Employment Service and the Association. Professional personnel will be available to assist employers and employees. Vocational counseling will also be available. Employers and candidates for positions are urged to obtain appropriate record forms from the Vocational Counseling and Placement Service, American Public Health Association, for filing prior to November 1.

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication.

POSITIONS AVAILABLE

Director of Public Health Research and Statistics—Required by Saskatchewan Department of Public Health. Salary range $828–$994 per month. Requirements: Graduation from an approved school of medicine, experience in epidemiology and biometrics, and preferably experience in an operating public health program or equivalent experience in medical research programs. To direct the research and statistical studies of the Saskatchewan Department of Public Health. Applications: Forms available at Public Service Commission, Legislative Bldg., Regina, Saskatchewan, Canada. Applicants should refer to competition No. c/c4597.

Director, Diagnostic and Research Tuberculosis Laboratory—Central Florida; physician or nonphysician microbiologist or clinical chemist. Part-time employment will be considered. Write Dr. Albert V. Hardy, Director, Bureau of Laboratories, State Board of Health, P. O. Box 210, Jacksonville, Fla.

Health Commissioner—Full time, Toledo City Health District—population 333,700. Qualifications: M.D. eligible for license in State of Ohio; public health training and experience. Present salary $12,340, but open depending on qualifications and experience. Apply: Dr. W. Hall, Acting Commissioner, 635 N. Erie, Toledo, Ohio.

Public Health Physician—for director of Butler County Health Department, Butler, Pa. (population 103,000). Permanently established department which has just received overwhelming vote of confidence of three and one-half to one in county-wide referendum. Well qualified staff includes a public health engineer, public health nurses, public health educator, and sanitarians. Three-year-old department with excellent opportunity for program development. Opportunity for association with the Graduate School of Public Health, University of Pittsburgh, for qualified man. Excellent personnel policies, unsurpassed retirement plan, fine educational, cultural, and recreational facilities. Starting salary $12,500–$14,500, depending on qualifications. Address inquiries to Edward C. Lutton, M.D., Chairman, Butler County Board of Health, 426 N. Main St., Butler, Pa.

Several Vacancies: Local Health Department Director—M.D. with M.P.H., or board certification, and six years' public health experience required. Salary range $9,720–$12,120. Salaries over maximum are paid in some local departments. Merit System Council, 814 Littlefield Bldg., Austin, Tex.

Qualified Public Health Nurse—Must be eligible for California certificate. Salary $376–$458; travel allowance for use of private car. Write to San Benito County Health Dept., Health Center Bldg., Hollister, Calif.

Public Health Nursing Director—Position open September, 1957. Supervising ex-

perience and B.S. in public health nursing required. M.P.H. desirable. Staff of 10 public health nurses doing strictly public health nursing in very desirable location in well established department with complete public health program, in fine modern building. Salary $5,100. Write J. H. White, M.D., Director, Weld County Health Department, Box 521, Greeley, Colo.

Wanted: **Public Health Nurse Supervisors**—Baltimore County Health Department. Suburban, rural, and industrialized areas. Population 400,000. Eight miles from Baltimore City. Generalized program, including school health program. Cars furnished. Sick leave and vacation after six months. Five-day week, retirement plan, 13 paid holidays. Present salary $4,263–$5,151. Write to Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Wanted: **Qualified Public Health Nurses**—in the Baltimore County Health Department. Suburban, industrialized, and rural areas. Population 400,000. Eight miles from Baltimore. Generalized program, including school health program. Cars furnished. Sick leave and vacation after six months. Five-day week, retirement plan, 13 paid holidays. **Senior Public Health Nurse** beginning salary $3,399; **Junior Public Health Nurse** $3,099. Write to Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Allegan County, Michigan, has immediate openings for the following:

Public Health Nurses—Starting salaries $3,720 and $3,960, according to qualifications, with annual $120 increases. To carry on generalized public health nursing programs. Minimum qualifications include licensure in nursing in Michigan and one year of academic public health training.

Sanitarian—Generalized program, etc. Generalized program in environmental sanitation; emphasis on milk, food, and resort sanitation. Graduate from four-year college; science background preferable. Salary $4,200, with annual $120 increases.

Allegan County, Mich., is a growing county, with an estimated population of 54,000, situated on Lake Michigan. We have liberal personnel policies, including a five-day week, Social Security, vacation of two days per month cumulative to 24 working days and liberal travel allowance. Write A. B. Mitchell, M.D., Director, Allegan County Health Department, Allegan, Mich.

Public Health Nursing Positions—Available in combination health department and visiting nurse service. Public health nursing preparation required. Generalized service. Agency in a university community. Beginning salary $3,996, yearly increments. Social Security. Please write Miss Patricia Walsh, Nursing Director, Washtenaw County Health Department, County Bldg., Ann Arbor, Mich.

Public Health Nursing Positions—Available in Health Department with the City of Flint, a rapidly growing city of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Car furnished. Beginning salary rates: $3,952, $4,329, or $4,654, depending on experience and qualifications. Automatic increases and longevity rates for length of service. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

Public Health Nurse—for generalized service in well established visiting nurse association. Population 167,000. Industrial and college community with many cultural advantages. Office 40 miles from New York City. Excellent personnel policies. Qualifications: a degree from a university program in nursing approved by the National League for Nursing for public health nursing preparation. Salary range $4,200–$5,000. Write to Miss Birdie M. McKee, Director, New Brunswick Visiting Nurse Association, 211 George St., New Brunswick, N. J.

Public Health Nurse—($3,682–$4,572 per year) for City of Rockford, Ill. Professional nursing work in connection with a city health department's general program. Applicants must be residents of the state of Illinois. Direct inquiries to Rockford Civil Service Commission, 126 S. First St., Rockford, Ill.

Open to citizens of the United States who possess the minimum qualifications:

Medical Social Work Adviser (Female)—$5,096–$6,136.

Medical Social Worker (Female)—$4,472–$5,356.

Public Health Nurse (Female)—$3,900–$4,680.

Nurse Anesthetist (Female)—$3,900–$4,680.

Medical Technologist I—$3,588–$4,264. Write Personnel Director, Municipal Building, Hartford, Conn.

Director of Public Health Nursing—Supervising experience in an official agency, degree in public health nursing and New York State license required; city health department generalized program; vacation, sick leave and retirement policies; salary $6,620. Write Chester A. Hicks, M.D., Director of Public Health, New Rochelle, N. Y.

Public Health Nutritionist—Develop and conduct program in district area, including consultation to nurses, teachers, social workers, small hospitals, nursing homes, children's institutions; training programs; community

studies and general nutrition education. Master's degree, internship, two years' hospital and community nutrition experience. $5,712–$6,852, plus travel expense. Vacation, sick leave, Social Security, retirement. Dr. Amy L. Hunter, State Board of Health, Madison, Wis.

The West Virginia State Health Department will accept applications for the following positions to be filled immediately:

Deputy State Director of Health—Salary $12,000–$14,440, plus travel expenses. Minimum requirements: Graduation from a Grade A medical school. At least one-quarter of graduate study in public health in a recognized school of public health. Three years' experience in a responsible administrative capacity in public health as the director of a major administrative section of a state health department, or in charge of a local health department. Eligible for medical license in West Virginia.

Director, Division of Maternal and Child Health—Salary $11,500, plus travel expenses. Minimum requirements: Graduation from a Grade A medical school. Completion of at least two years of graduate training or experience in clinical pediatrics or obstetrics or both. Successful completion of one year of graduate study in the field of public health in a recognized school leading to a master's degree within three years of assuming office. Eligible for a medical license in West Virginia.

Director, Bureau of Dental Health—Salary $9,000, plus travel expenses. Minimum requirements: Graduation from a Grade A school of dentistry. Licensed or eligible for license to practice dentistry in West Virginia. Completion of a postgraduate course in children's dentistry and at least two years of clinical experience in the general practice of dentistry or in hospital service; or, three years of experience in a public health dental program. Successful completion of one year of graduate study in the field of public health in a recognized school leading to a master's degree within three years of assuming office.

All of the above positions are under the West Virginia Merit System. Write to N. H. Dyer, M.D., Director, West Virginia State Department of Health, Charleston 5, W. Va.

Public Health Nursing Professor—for College of Nursing, University of Bridgeport, Bridgeport, Conn. Salary open. Summers free. Must meet NLN accrediting services qualifications. Responsibilities include planning instruction in public health and teaching public health nursing. Will work closely with the New Haven and Bridgeport Visiting Nurse Associations. Write to the College.

Public Health Nurse Supervisor—$5,240–$5,880. Generalized program in a combination service—emphasis on home care for long-term illness—maternity and child health. Thirty-five-hour week, five-day week. Call District Nursing Association of Northern Westchester, 10 W. Hyatt, Mt. Kisco, N. Y.

Industrial Hygienists—The Industrial Hygiene Section of the Medical Research Division requires two young industrial hygienists. They should be under 30 years of age with degrees in chemical engineering, sanitary engineering, or chemistry. Graduate training in industrial hygiene is desirable, but not required. As a member of a team, will work in an advisory capacity in performing industrial hygiene studies for affiliates of Standard Oil Company (N.J.), including basic studies for evaluation and control of environmental health problems associated with producing, refining, manufacture of petrochemicals, and in marketing. Starting salary commensurate with experience and ability. Give full details of education, experience, desired salary, availability date, and references. All inquiries will be considered promptly and held confidential. Address replies to Esso Research and Engineering Company, Employee Relations—C, P. O. Box 51, Linden, N. J.

Public Health Engineer (Male)—Bachelor's degree in civil, sanitary, or chemical engineering or equivalent. Five years' experience in public health or sanitary engineering. Eligible for Texas registration. Apply to Civil Service Board, Room 401, Municipal Building, Dallas, Tex.

Sanitary Inspector—for generalized sanitation program in western New York county health department. Excellent staff, retirement program, liberal vacation, car provided for official use. Graduation from high school, including courses in general science, mathematics, and chemistry and two years of satisfactory sanitary inspection experience required. Salary $3,073.20–$3,586.80. Write Sanitary Engineer, Box 573, Olean, N. Y.

Director of Health Education—County health department planning full-scale program in prosperous Central State Community. Other health educators, clerical staff, full complement of workers available. Minimum requirement: M.S. in public health. Important personal qualifications: basic public health knowledge, imagination, sense of public relations, sound mental and physical health, desire to work. Salary $6,000–$9,600. Can start above minimum. Write **Box HE-85**, Employment Service, APHA.

Sanitarian, Milk—($4,127–$5,106 per year) for City of Rockford, Ill. (population 105,000). Work is performed under general supervision of city health commissioner, and involves the inspection of milk processing and distribution on a commercial basis. Direct inquiries to Rockford Civil Service Commission, 126 S. First St., Rockford, Ill.

Wanted: **Two Public Health Administrators**—master's degree in public health administration, public administration, or hos-

pital administration. Some experience in public health. Starting salary $7,650. Thirty days' annual leave; sick leave and other benefits. Contact Douglas Terry, Public Health Administrative Director, Alaska Department of Health, Juneau, Alaska.

Health Educator—M.P.H. to direct established health education program in a well staffed health department housed in a new modern building. Write to J. H. White, M.D., Director, Weld County Health Department, P. O. Box 521, Greeley, Colo.

Program Associate—National Tuberculosis Association. Salary range $6,636–$8,820. Beginning salary will depend upon candidate's experience and qualifications. Duties: Develop program opportunities for voluntary tuberculosis associations in the fields of respiratory illness and air hygiene. Coordinate investigative, fact-finding, and program projects in these fields and develop pilot projects in state and local associations. Work with advisory committee of specialists in developing policy and program. Qualifications: Bachelor's degree; graduate work in public health desirable. Knowledge and comprehension of public health and significant responsible experience in voluntary or official agency work. Opportunity for growth and reclassification of position. Retirement plan, life insurance, hospital and surgical plans, one month vacation, moving expenses paid. Interested persons write Miss Clarissa E. Boyd, Director, Program Development Division, National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

Health Educator—Develop health education program in multicounty region in and around Seattle, Wash.; also work on statewide programs. Requirements: M.P.H., man or woman under 40, car. Salary between $4,800 and $6,000, eight cents per mile and travel allowance. Social Security, medical coverage. Victor Schoch, Executive Director, Washington State Heart Association, 3121 Arcade Bldg., Seattle 1, Wash.

Health Education Consultant—to fill vacancy and be in charge of an established county-city health department program in a community of over 300,000 people. M.P.H. degree desired. Salary $420–$500. Write to C. R. Fargher, M.D., Director of Health, 2324 Pacific Ave., Tacoma 2, Wash.

Health Education Specialist (School Health Consultant)—Plan and develop state-wide school health program; provide consultation and advisory service to school and public health personnel; participate in inservice training of professional groups and assist school administrators with teacher training; coordinate department program with other state and voluntary agencies. One year graduate study public health; three years' experience in education, public relations, or public health; teaching experience. Salary $6,372–$7,692. Travel allowance, vacation, sick leave, Social Security, retirement. Dr. Amy L. Hunter, State Board of Health, Madison, Wis.

Senior Public Health Statistician—Duties include the supervision of the work of a statistical analysis section in the Division of Vital Records of a health department in Los Angeles County with a population of over 2,500,000. Requirements include a bachelor's degree plus two years' experience in planning and applying statistical procedures and interpreting statistical data, one year of which must be in the field of public health. Salary range $489–$608. Write Health Officer, Los Angeles County Health Department, 241 N. Figueroa St., Los Angeles 12, Calif.

Statistician—The Johns Hopkins University, in Baltimore, Md. Primary task to take part in analysis of morbidity data collected in five-year longitudinal study: "Effects of housing quality on physical health, mental health and social adjustment." Study is now at preliminary analysis stage. Additional tasks include directorship of coding operation now well under way. Job duration: two and one-half years. Faculty appointment, research associate, Department of Biostatistics, for qualified person. Opportunity to pursue advanced degree while on job. Salary $6,200 to start. Address Dr. Daniel M. Wilner, Department of Biostatistics, School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore 5, Md.

Senior Public Health Statistician—for Los Angeles City Health Department. Position involves responsible work in compiling and analyzing public health statistics and data. Graduation from college with six semester units in statistics and two years of experience in compiling and analyzing public health statistics are required. Immediate placement; not necessary to come to Los Angeles before employment. Salary range $516–$641 per month. Write Room 5, City Hall, Los Angeles 12, Calif.

Dietitian I—Administrative dietitian at Denver General Hospital. Must be an active member of American Dietetic Association. Salary range $280–$335. Apply Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Occupational Health Service Officer—Public health master's degree from accredited school of public health, with emphasis in occupational or industrial hygiene, plus two years in planning, developing, directing programs in these fields. Salary range $500–$628. Apply Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Public Health Education Director—Public health education master's degree with five years' responsible full-time experience in public health and the administration of such program. Salary range $500–$628. Apply

Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Social Worker I—Completion of all academic and field work necessary for a master's thesis in the field of social work, preferably with major sequence in medical or psychiatric social work, from an accredited school of social work. Salary range $320–$400. Apply Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Social Worker II—Master's degree in medical or psychiatric social work from an accredited school of social work, plus three years' social work experience in a hospital or clinic area. Salary range $383–$479. Apply Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Social Worker III—Master's degree in medical or psychiatric social work from an accredited school of social work. Four years of social work experience, two of which must have been in medical or psychiatric fields, including one year of supervision or consultative experience. Salary range $419–$525. Apply Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Microbiologist—Microbiology department of midwest medical school wants microbiologist with a Ph.D. for position of instructor or assistant professor. Preferably a man with experience in teaching medical students or applied medical bacteriology. Adequate time for research. Starting salary $7,000. Write **Box L-55,** Employment Service, APHA.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Virologist—Ph.D., strong background in viral immunology, including tissue culture techniques. Academic and research experience. Publications. Desire position in public health agency, university, or industry. Prefer New England area. Résumé of experience and reference furnished. Write **Box L-54,** Employment Service, APHA.

D.V.M.—from Hungary (degree approved by American Veterinary Association), with long experience in epidemiologic studies and control of infectious diseases, especially parasitic, diagnostic laboratory, meat inspection. Also interested in research work. Permanent resident in United States with First Papers. Dr. Frank Domjan, c/o Mr. E. C. Rowan, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Director, city-county health department; total population to be served 500,000; resort area, Southwest; $15,000. (b) Epidemiologist; preventive medicine staff, foreign operations leading industrial company; $14,000 plus $4,000 family maintenance; two-year contract, three months vacation. (c) Assistant director, student health department, 8,000 students; South. (d) Woman physician to direct student health departments, woman's college and infirmary located on campus; West; $9,000. (e) Chief, division of chest diseases; county health department; population 550,000; $992 increasing to $1,236; West. (f) Health commissioner, county health department; full time cooperating unit; near university center; Midwest; $15,000. (g) Senior bacteriologist; public health laboratory, New York; minimum $5,000. (h) Health educator; department of health, university city, Midwest; duties primarily professional education with members of health department, community groups and public generally; $5,400–$6,300. (i) Sanitarian; degree in sanitary sciences, public health or engineering, three years' experience required; foreign operations, major industrial company; $10,000–$12,000. (j) Health inspector experienced meat and dairy products inspection; foreign; $700. PUBLIC HEALTH NURSES FOR FOLLOWING: (k) Assistant professor; state college department of nursing; California; $6,000 up. (l) Field supervisor, excellent opportunity involving research; county district health service; near New York City; to $5,900. (m) Instructor; teach student health; coordinate program; renowned 350 bed hospital; Pennsylvania mountains; $5,000 up.

OPPORTUNITIES WANTED

WANTED—Opportunities for public health physicians, nurses, health educators, engineers, laboratory personnel. Candidates in all parts of the country, available for administrative, academic and staff appointments. Negotiations strictly confidential.

News from the Field

WHO News

Venezuela's Million Bolivars

The Venezuelan Government has contributed one million bolivars (about $300,000) to the Special Fund for Malaria Eradication set up by the Pan American Sanitary Organization for collaboration with governments in eradicating malaria from the American Continent. Venezuela itself is a leader in the eradication program having eliminated malaria in areas in which over 80 per cent of the country's population lives.

The Division of Malariology of the country's Ministry of Health has already since 1943 conducted an annual international course for training malaria workers attended each year by 25 or 30 students, largely from abroad. For this course the Venezuelan government offers one fellowship to each country in the Americas except to the five "Bolivarian Countries," to which it offers two each.

The Pan American Sanitary Bureau has recently published a pamphlet on the "Status of the Anti-Malaria Campaign in the Americas" by the WHO-PASB regional malaria consultant, Dr. Carlos A. Alvarado. He calls the coordination of a plan to eradicate malaria in the Americans, "a mandate of history."

Addiction-Producing Drug Problem

The seventh report of WHO's Expert Committee on "Addiction-Producing Drugs" recommends that governments provide adequate control measures to prevent abuses in the use of amphetamines; that since the abuse of barbiturates has not lessened, national control measures are necessary; that the "tranquilizers" be subjected to the same control since they are potentially habit-forming and are being consumed excessively; and that certain morphine-like synthetic substances of pethidine-type be considered addiction-producing and be subjected to international control.

The committee further suggests that WHO consider setting up seminars on various problems of drug addiction. It also recommends that the distinction between addiction and habit be emphasized. Technical Report Series No. 116. Columbia University Press, 2960 Broadway, New York 27; 30 cents.

Reviewing 1956 in WHO

The April, 1957, issue of the "Chronicle of the World Health Organization" is a brief review of the 1956 annual report of Director-General of WHO, M. L. Candau, M.D. Here will be found a brief review of the status of control of the chief communicable diseases that are still plaguing the world, as well as the story of WHO's contributions to public health services. There is a brief description of the activities of each of the six regional offices. Chronicle of the World Health Organization 11:4, April, 1957. Columbia University Press, 2960 Broadway, New York, 30 cent per copy, $3 annual subscription.

Simmons Professorship at Harvard

The James Stevens Simmons Professorship has been established at the Harvard School of Public Health. This, the second named chair to be permanently endowed in the faculty of public health, honors the late Brigadier General Simmons who was dean of the school from 1946 until his death in 1948.

Under General Simmons' leadership,

the Harvard School of Public Health made rapid growth. General Simmons was particularly interested in international health. He fostered the school's development as an international center of teaching and research, traveling widely for this purpose.

General Simmons was chief of preventive medicine for the Army during World War II. He spent 30 years in the U. S. Army Medical Corps winning international renown as a research bacteriologist, specialist in tropical medicine, pioneering teacher, author, lecturer, and administrator of military preventive medicine and civil public health.

The professorship has been made possible by contributions from friends, former colleagues, and students of General Simmons in both the military and public health professions. George C. Shattuck, M.D., clinical professor of tropical medicine, emeritus, at the school headed a committee of sponsors that included, among others, Brigadier General Stanhope Bayne-Jones, USAR (Rtd.); Martha M. Eliot, M.D., director of maternal and child health at the school; Rolla E. Dyer, M.D., of Emory University; Major General Silas B. Hays, Surgeon General, U. S. Army; Mrs. Mary Lasker of the Lasker Foundation; Philip Mather, president of the American Social Hygiene Association; and Tom F. Whayne, M.D., of the University of Pennsylvania.

A Division of Medical Sociology

A Division of Medical Sociology has been established in the Department of Preventive Medicine and Public Health of the University of Texas Medical Branch in Galveston, which is reported to be the first organization of its kind in any medical school. In addition to conducting research and teaching in the realm of socioenvironmental aspects of health and illness, the division operates jointly in such specialities as psychiatry, nursing, and medical education and administration. Several research projects in areas such as industrial health, social epidemiology of mental disorders, tuberculosis, and alcoholism are currently under way.

E. Gartly Jaco, Ph.D., will serve as director, with the initial staff composed of Norman G. Hawkins, Ph.D., and Sam Schulman, Ph.D., as assistant professors of medical sociology.

57 Rural Counties in 24 States

A current Rural Development Program of the Department of Agriculture stems from President Eisenhower's 1954 presidential message in which he suggested that specialized attention be given to the problems peculiar to small farmers. The first annual report of this program, as of September, 1956, by the Secretary of Agriculture, now available, reports the objective "to help low-income farm families achieve a more productive and rewarding life."

A federal Rural Development Committee is made up of the Undersecretaries of Agriculture, Interior, Labor, Commerce, and Health, Education, and Welfare, as well as the administrator of the Small Business Administration and a member of the Council of Economic Advisors. In turn, states taking part in the program provide guidance through similar committees broadly representative of both private organizations and government agencies working in research, agricultural and industrial development, employment, health, education, and welfare. Areas that have undertaken programs likewise have broadly representative local committees, putting emphasis upon the leadership of rural people. A survey to guide the program is usually the first step.

Among the principal activities are increased extension work among small farm families, credit programs for small

farmers, technical aid in soil, water, and forest use and conservation, encouragement of industrial expansion and in finding employment for part-time farmers, evaluation of vocational education, and special attention to community health and welfare needs such as nutrition projects, improvement of health services, and information on expanded benefits of social security.

Among some of the projects being carried on are increasing recreation opportunities for rural youth, studying the need for increased industrial arts education, planting pine seedlings on barren acres, and establishing woodlot demonstration areas to show increased income possible from proper use of forest resources.

An analysis by the Public Health Service shows that in the 60 counties with RD programs, the per capita income was 42 per cent less than in all the counties of the United States; the infant mortality rate was 3.8 points higher; the 1954 per capita expenditures for full-time health services were less than half those for all counties, as were the number of dentists, physicians, and nurses per 100,000 population.

The first annual report and a number of other descriptive items are available from Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

NTA Medals Awarded

The 53rd annual meeting of the National Tuberculosis Association at Kansas City in May honored a microbiologist and an administrator for outstanding achievement in the tuberculosis field. David T. Smith, M.D., professor of microbiology and associate professor of medicine, Duke University School of Medicine and past-president, NTA, was awarded the Trudeau Medal, named for the first president of NTA, Edward L. Trudeau, M.D. Dr. Smith developed the research laboratory at the New York State Hospital for Tuberculosis, Raybrook, where he was originally a patient. He carried on basic studies in immunity to tuberculosis. At Duke, Dr. Smith and his associates have developed a skin test for blastomycosis among other important researches.

The Will Ross Medal in honor of a former NTA president and Wisconsin industrialist was won by Robert G. Paterson, the first executive secretary of the Ohio Tuberculosis and Health Association, a position he held for 35 years from 1911 to 1946. For a year, thereafter, he was director of research and executive secretary emeritus. Then he was NTA archivist for five years and is now retired.

William M. Morgan, Ph.D., professor of organic chemistry, Mt. Union College, Alliance, Ohio, is the new president of NTA. President-elect is Mario Fisher, M.D., health officer of Duluth and St. Louis County, Minn.

The new president of the American Trudeau Society, the Medical Division of NTA, is Theodore L. Badger, chief, Medical Thoracic Clinic, Boston City Hospital; president-elect is Daniel E. Jenkins, M.D., professor of medicine, Baylor University School of Medicine.

The president of the National Conference of Tuberculosis Workers is Kenneth C. Ross, executive secretary of the Oregon Tuberculosis and Health Association, while president-elect is L. L. Taylor, executive director of the Stark County (Ohio) Tuberculosis and Health Association.

Labor Sponsors Detroit Health Plan

The Community Health Association has been organized in Detroit under the leadership of the United Automobile Workers Union. Participating in the founding besides labor leaders were businessmen, educators, representatives of three religious faiths, and a judge.

The purpose of the new organization is to develop "a plan to furnish comprehensive prepaid health services of high quality, based on more efficient utilization of existing facilities and personnel, a rational organization of personal health services and a method of financing geared to the positive promotion of health." Operating in free competition with existing plans, it will first serve community groups and later be extended to individuals and families.

Guiding principles for the program have been outlined as follows:

Financing through prepayment
Comprehensive coverage
Service benefits rather than cash indemnity
Assurance of high quality care by setting and maintaining standards, continuing education of professional personnel, and periodic evaluation
Central role of the personal physician
Group practice "for the purpose of rendering complete and balanced health services"
Medical groups associated, whenever possible, with participating hospitals
Use of existing facilities, "where adequate facilities exist and where cooperation can be obtained"
Membership open to any group in the community
Free choice of plan, as between CHA and existing plans
No lay interference by the prepayment plan in purely medical matters
Consumer voice in non-medical matters.

Frederick D. Mott, M.D., medical administrator of the Miner's Memorial Hospital Association of the United Mine Workers Welfare and Retirement Fund, is resigning to become the first executive director of the new organization. He will take office on September 1 and will share in the planning preparatory to operation of the new service, which is described as preparing to offer "a different kind and more advanced health program," including outpatient care and home visits by physicians. Leonard Rosenfeld, M.D., director of medical care evaluation studies, United Community Services of Metropolitan Boston, has been appointed assistant executive director.

Chronic Alcoholism Under Study

The New York State Interdepartmental Health Resources Board, made up of representatives of a number of state agencies, is undertaking a program of education, research, training, and clinical demonstration to attack the problem of chronic alcoholism. Fellowships primarily for those participating or planning to work in community education programs with respect to problem drinking will be available for physicians, social workers, nurses, educators, and other professional personnel.

The Board is already supporting at the State University of New York College of Medicine, Brooklyn, a research project along various lines, including the social, economic, clinical, psychiatric, and pharmaceutical aspects of alcoholism.

The Board is assisted in program development by an advisory committee of consultants who represent psychiatry, internal medicine, the legal profession, and the courts. Chairman of this committee is John L. Norris, M.D., medical director, Eastman Kodak Company, Rochester.

Officers Mental Health Materials

The new officers of the Mental Health Materials Center are:

President: James H. Scull, director of public relations, Family Service Association of America
Vice-President: Gunnar Dybwad, executive director, National Association for Retarded Children
Secretary-Treasurer: Joseph Musial (re-elected).

The primary function of the Mental Health Materials Center is to promote the widest possible dissemination of

authoritative leaflets, pamphlets, books, and films and other audiovisual aids in the field of mental health, human relations, and family life. 1790 Broadway, New York 19.

Labor Protects Medical Care Plans

AFL-CIO has established a war chest to finance legal counsel, technical aid, and public education in behalf of labor-sponsored medical service plans. This is in response to what the national labor federation believes is "an apparent concerted renewal of attacks upon such programs by elements of organized medicine." The fund will be administered by the Association of Labor Health Administrators in defense of victims of any efforts to destroy the programs described as endeavoring "to improve the quality and scope of prepaid services to working people and their families."

American Water Works Elects

At the 77th annual conference of the American Water Works Association held in May and attended by more than 3,000 delegates, the following officers were elected and took office:

President: Fred Merryfield, professor of sanitary engineering, Oregon State College
Vice-President: Lewis S. Finch, vice-president and chief engineer, Indianapolis Water Company
Treasurer: William J. Orchard, Wallace & Tiernan Company, Belleville, N. J.

Dallas has been selected as the site for the 1958 meeting, April 20 to 25.

A World Rehabilitation Fund

The World Rehabilitation Fund is a new international voluntary agency which is sponsoring international rehabilitation projects throughout the world. Howard A. Rusk, M.D., is its chairman.

One of the fund's early projects is technical assistance in expanding and developing rehabilitation services in the Philippines. Two shipments of artificial limbs have already been made to the islands. The American President Lines has made available funds for a fellowship through which a Philippine physician is enabled to receive advanced training in rehabilitation and physical medicine in the United States.

Rehabilitation personnel from a number of other countries have been assisted to study in the United States; books and periodicals have been provided; rehabilitation demonstrations and conferences have been sponsored in various countries; and artificial limbs provided for Thailand.

State Health Educators Meet

At the biennial meeting of the Conference of State and Territorial Directors of Public Health Education in Denver, Colo., April 14–17, the following officers were elected:

President: Elizabeth Reed, director, Division of Health Information, Florida
President-Elect: Sara C. Stice, director, Division of Public Health Education, Kentucky
Vice-President: Robert C. Milligan, director, Bureau of Public Health Education, Pennsylvania
Secretary-Treasurer: Marie Ford, chief, Section of Public Health Education, Minnesota.

Virginia Poison Information Center

The Richmond Poison Information Center began operation on March 15, 1957, on a 24-hour basis. The main purpose is to supply physicians with information and treatment guidance concerning the make-up of a suspected preparation or plant as the cause of poisoning. A public education program in prevention is also being carried on.

The Center was organized cooperatively by the Virginia and Richmond Health Departments, the Richmond Pediatric Society, the City Schools, the

Area Safety Council, the Medical College of Virginia, and the Monacan Junior Woman's Club. Director is Sidney Kaye, toxicologist in the office of the Richmond chief medical examiner, and assistant director is Lillian C. Lindemann, M.D., of the Richmond Health Department.

Lecture Honoring Dorothy Nyswander

In honor of Dorothy B. Nyswander, Ph.D., professor of health education, University of California School of Public Health, who retired at the end of the 1957 academic year, a lecture series has been established at the school by friends, former students, and colleagues, thus honoring her contributions to the field of public health education. The first lecture in this annual series was given at Earl Warren Hall of the university in Berkeley on May 21, 1957, by Mayhew Derryberry, Ph.D., chief, Public Health Education Services, Public Health Service. His topic was "Health Education in Transition."

Washington Rehabilitation Center

A rehabilitation center has been established at the University of Washington School of Medicine. It will accept patients from all parts of the state upon referral of the patient's physician. The final step in the creation of the center was the recent appointment, as the first professor of physical medicine and rehabilitation, of Justus F. C. Lehmann, M.D., formerly in the same position in the Ohio State University School of Medicine.

The N.S.F. Seal of Approval

The National Sanitation Foundation Testing Laboratory has published a compilation of manufacturers authorized to use the seal of approval of the laboratories, together with the individual manufactured items meeting the standards. More than 150 companies are given, classified by the equipment approved. Approximately 8,000 items make up the individual item list. Manufacturers are listed under four headings. Those approved for Standard No. 1—Soda Fountain and Luncheonette Equipment; Standard No. 2—Food Service Equipment; Standard No. 3—Spray-Type Dishwashing Machines; and Standard No. 4—Special Devices. National Sanitation Foundation Testing Laboratory, Ann Arbor, Mich. Free.

PERSONALS

EDWARD R. ASTON, D.D.S., industrial dental consultant, Pennsylvania State Department of Health, is the first recipient of a special award of the American Association of Industrial Dentists for his "pioneering work in the field of industrial dentistry."

ELEANOR BENOIT, O.T.R., former director of occupational therapy, Long Island Hospital, Boston, is now senior occupational therapist, Division of Crippled Children, Connecticut State Department of Health.

YVONNE D. BERCE, M.P.H.,† is now public health nutritionist, Northern State Health District, New Jersey State Department of Health.

ALBERT EDWARD BERRY, Ph.D.,* general manager and chief engineer, Ontario Water Resources Commission, has been made an honorary member of the American Water Works Association of which he has been a member for 37 years.

RAYMOND W. BRUNELL, former educational director, Commission on Alcoholism, has been appointed public health education consultant, Connecticut Department of Mental Health.

MARY M. BUJOLD is a new medical records librarian, Minnesota Department of Health.

WILLIAM G. CASTAGNOLI, former director of public relations, Queensboro Tuberculosis and Health Association, has joined the public relations staff of the New York Tuberculosis and Health Association with special responsibility for radio and television work.

GEORGE CHORNESKY, M.D., former staff physician, St. Elizabeths Hospital, is now staff psychiatrist, Legal Psychiatric Services Di-

* Fellow.
† Member.

vision, District of Columbia Department of Public Health.

GEORGE J. CLARKE, former associate director, Goodwill Industries of New York, is now executive officer, International Society for the Welfare of Cripples, with headquarters in New York City.

H. E. FEBICH, is now administrative officer of the Bucks County (Pa.) Health Department.

ARLEY FLINDERS, M.D.,† who has recently completed work for the M.P.H. degree at the University of California School of Public Health, is the first full-time health officer of Ogden, Utah.

MILTON P. FRIEDMANN, former training officer, has been appointed to the newly created position of chief, Division of Sanitarian Training, Sanitary Section, Baltimore (Md.) Health Department.

BEATA J. M. GEIGER,† former director of nurses, Lee County (Ill.) Health Department, is now public health nursing consultant, Division of Public Health Nursing, Wyoming State Department of Health.

MARY GORMLEY, psychiatric social worker, Oklahoma State Health Department, has resigned to become casework consultant, Regional Health and Welfare Council, Kansas City, Mo.

G. HOWARD GOWEN, M.D.,* deputy director, Division of Hospitals and Chronic Illness, Illinois State Department of Public Health, has resigned to become chief, Division of Health and Welfare, U. S. Operations Mission, International Cooperation Administration, in Chile.

EDWARD R. HERMANN, S.M., C.E., Ph.D.,* former research engineer, University of Texas, has been appointed to the staff of the Medical Division, Humble Oil and Refining Co., Baytown, Tex.

GERTRUDE HESS, R.N.,† assistant professor, Nursing Education, University of Chicago, has been awarded a Fulbright award for study at the University of Heidelberg, Germany, beginning September, 1957.

WILLIAM VINCENT HICKEY,† former director, Division of Foods and Sanitary Engineering, Salt Lake City (Utah) Board of Health, has been appointed field sanitarian, Public Health Committee, Paper Cup and Container Institute, New York City.

ELMER L. HILL, M.D.,* former medical officer in charge of the USPHS office, Frankfurt, Germany, is now chief, Public Health Traineeship Unit, Division of General Health Services, Public Health Service, Washington, D. C.

LOUIS N. KATZ, M.D., director, Cardiovascular Department, Medical Research Institute of Michael Reese Hospital, Chicago; past president, American Heart Association and Chicago Heart Association; a founder and president, American Association for the Study of Atherosclerosis; and permanent honorary president, Inter-American Society of Cardiology, has received the 1957 Albert Lasker Award of the American Heart Association.

CLARK LEBOEUF, former administrative assistant, has been appointed assistant director, Office of Vital Statistics, New York State Health Department.

LYNDON E. LEE, JR., M.D.,† former instructor in surgery and associate in pharmacology, University of Michigan Medical School, has been appointed chief of surgical research, extra-VA research division, Research and Education Service, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.

WILLIAM A. MARKEY,† former assistant administrator, has been appointed administrator, City of Hope Medical Center, Duarte, Calif.

IRVING MARKHEIM, P.H.M.T.,† formerly director, Pathological Laboratory, J. Winer Clinic in Beverly Hills, Calif., has been appointed administrator, Beverly Hills Doctor's Hospital.

GEORGE W. MAST, M.D., Dr.P.H.,† former vice-president, medical and scientific director, Nepera Chemical Company, is now a vice-president and director of new product development, Warner-Chilcott Laboratories, ethical drug division of the Warner-Lambert Pharmaceutical Company, Morris Plains, N. J.

A. MADELEINE MCCAIN, M.P.H.,* former public health educator, Department of Health, Woman's College, University of North Carolina, Greensboro, is now on a two-year assignment as a health education consultant with WHO in Indonesia, Djalan, Teuku Umar 3, Djakarta.

COL. JOSEPH MCNINCH, M.C.,* Medical Section, Hq., AFFE, Eighth Army, has been promoted to Brigadier General.

GEORGE W. METCALF, M.D., former deputy chief, Neuropsychiatry Service, Outpatient Clinic, USPHS, is now chief, Adult Mental Health Clinic, District of Columbia Department of Public Health, Washington, D. C.

WILLIAM J. MEYER, M.D.,† former assistant district health officer, is now district health

* Fellow.
† Member.

officer, Glens Falls District Office, New York State Department of Health.

ALAN D. MILLER, M.D., M.P.H.,* director, Mental Health Study Center, National Institute of Mental Health, is being transferred to England for advanced study and research in mental health. He has been succeeded by STANLEY F. YOLLES, M.D., M.P.H.,† who has been on leave of absence at the Johns Hopkins University, School of Hygiene and Public Health.

J. ARTHUR MYERS, M.D.,* professor of medicine, preventive medicine and public health, and consultant on tuberculosis to the Student Health Service, University of Minnesota, has retired after 43 years service.

HELEN NAHM, R.N., Ph.D., associate director of the National League for Nursing, and director, Division of Nursing Education, has resigned as of January 1, 1958, to become dean and professor of nursing, University of California.

FRANCIS T. OLIVER, M.D.,† former assistant and later acting district health officer, has been appointed Rochester District health officer, New York State Department of Health.

STANLEY H. OSBORN, M.D., Dr.P.H.,* Connecticut commissioner of health, has received the 1957 Shattuck Award of the Massachusetts Public Health Association for "distinguished service in public health for the last 40 years, and for development of an outstanding department of health in Connecticut."

M. L. PALMIERI, M.D., is director of health, Middletown, Conn., succeeding WILLIAM Y. CHEN, M.D., M.P.H.,† who is now in the National Cancer Institute, Bethesda, Md.

RICHARD A. PRINDLE, M.D.,† former acting chief, Health and Sanitation Division, ICA Operations Mission to Haiti, is now chief, Program Services Section, Air Pollution Medical Program, Division of Special Health Services, Public Health Service, Washington, D. C.

DOROTHY ROOD, Ph.D.,* former head, Department of Education, Theosophical Society in America, Wheaton, Ill., is now with the Theosophical Society in Madras, India, particularly studying health conditions.

THORNDIKE SAVILLE,* professor of hydraulic and sanitary engineering and dean, College of Engineering, New York University, received an honorary doctorate of science on his retirement. The citation describes him as "a man of thought and action, skillful of designs and dynamic of execution, whose talents embrace the better properties of the Univac and the bulldozer homogenized."

WILSON G. SMILLIE, M.D.,* executive director, State Charities Aid Association, will retire on November 1 to be succeeded by GORDON E. BROWN,† an associate executive director and director of public information. LOWELL IBERG, an associate executive director, will become deputy executive director.

J. EARL SMITH, M.D.,* commissioner, Division of Health, St. Louis Department, has received the 1957 W. Scott Johnson Award of the Missouri Public Health Association for distinguished service in public health in the state.

JEROME H. SVORE, M.E., M.S.,† director of public health and chief sanitary engineer, North Dakota State Health Department, has resigned to join the Public Health Service as a sanitary engineer with his first assignment with the Columbia Basin Inter-Agency Committee.

CHARLES F. WILLIAMS, M.D., formerly in private practice of pediatrics in Raleigh, is now on the maternal and child health staff, North Carolina State Board of Health.

J. M. WISAN, D.D.S.,* head of the former Dental Section, has been appointed director of the newly created Division of Dental Health, Philadelphia Department of Public Health.

* Fellow.
† Member.

DEATHS

JAY I. BOXER,* author and consultant in health education, Hicksville, N. Y., on June 1 (Public Health Education Section).

WALTER R. DEFOREST, M.D.,* director of health, Hamilton, Ohio, on May 18 (Medical Care Section).

WALTER M. DICKIE, M.D., Ph.D.,† formerly state health officer of California on May 8 (Health Officers Section).

ALAN GREGG, M.D.,† retired vice-president of the Rockefeller Foundation and a 1956 recipient of a special Albert Lasker Award presented by the American Public Health Association naming him, "elder statesman to science as a whole," on June 19 (Unaffiliated).

DONALD A. GROVER, M.S.,† director of laboratories, Calhoun County (Mich.) Health Department on March 12, 1956 (Laboratory Section).

MURRAY P. HORWOOD, Ph.D.,* professor of sanitary science, Department of Civil and Sanitary Engineering, MIT, on June 4. He

was a life member and had received a 40-year certificate from the Association (Engineering Section).

CHARLES R. REIN, M.D.,* associate professor of dermatology and syphilology, New York University (Laboratory Section).

HARRY P. STIMSON, D.O.,† chairman, Public Health Department, Michigan Association of Osteopathic Physicians and Surgeons, on March 26 (Unaffiliated).

HAROLD G. TRIMBLE, M.D.,* consultant on diseases of the chest, Alameda County Institutions, Oakland, Calif., on May 8 (Epidemiology Section).

CONFERENCES AND DATES

American Public Health Association, 85th Annual Meeting. Cleveland, Ohio. Headquarters: Public Auditorium, November 11–15.

State and Regional Public Health Meetings:

Arkansas Public Health Association. Marion Hotel, Little Rock. August 5–6.

Florida Public Health Association. Ft. Lauderdale. October 31–November 2.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis. September 19–20.

Oregon Public Health Association. Medford. October 24–25.

Pennsylvania Public Health Association. University Park. August 18–22.

South Dakota Public Health Association. Yankton. September 25–27.

Washington Public Health Association. Tacoma. October 20–22.

Meetings of Other Organizations Coming in August, September, and October:

American Academy of Pediatrics. Palmer House, Chicago, Ill. October 7–10.

American Association of Medical Record Librarians. Schroeder Hotel, Milwaukee, Wis. October 7–10.

American Dietetic Association. Miami, Fla. October 24–25.

American Heart Association. Hotel Sherman, Chicago, Ill. October 25–28.

American Occupational Therapy Association. Cleveland, Ohio. October 19–25.

Association of American Medical Colleges. Haddon Hall, Atlantic City, N. J. October 20–23.

Cuban Public Health Society. Instituto Finlay, Havana, Cuba. August.

International Association of Milk and Food Sanitarians. Brown Hotel, Louisville, Ky. October 8–10.

Muscular Dystrophy Associations of America. New York, N. Y. October 8.

National Medical Association. Cleveland, Ohio. August 12–15.

National Recreation Congress-National Recreation Association. Long Beach, Calif. September 29–October 4.

National Safety Council. Conrad Hilton Hotel, Chicago, Ill. October 21–25.

National Society for Crippled Children and Adults. Palmer House, Chicago, Ill. October 31–November 2.

Symposium on Antibiotics. Washington, D. C. October 2–4.

World Federation for Mental Health. Copenhagen, Denmark. August 11–17.

* Fellow.
† Member.

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Charlemagne squinted across the fire. "Who is it?" he challenged in Creole.

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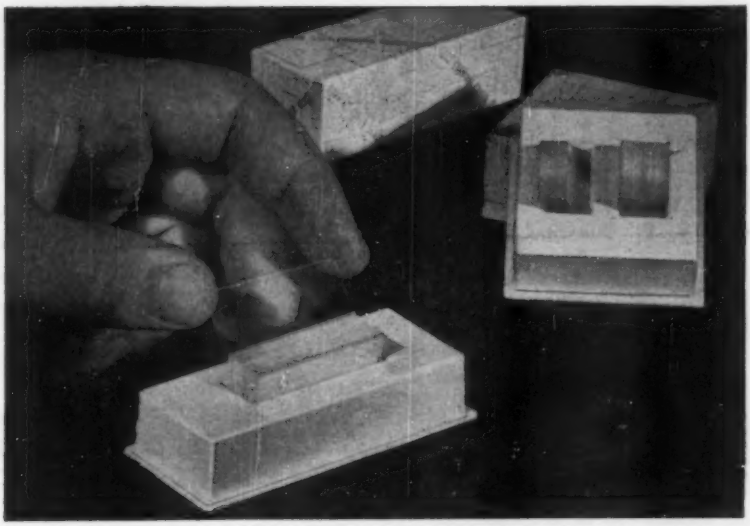

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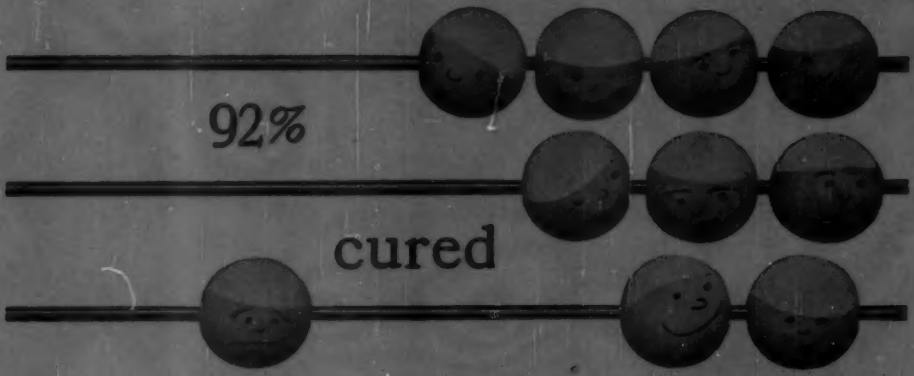

in 12 weeks[1]

The Salundek formula is based on clinical [2-4] and *in vitro* studies with each of its four antifungal agents individually, and on the successful trial of the combined formula.[1] Salundek Ointment contains mono- and dichlorosalicylanilides (4%), salicylanilide (3%), undecylenic acid (2%), and zinc undecylenate (10%). A special wetting agent is added to enhance spreading ability and penetration. Salundek Ointment is prepared with a non-irritating, nonsensitizing greaseless carbowax base. Salundek Ointment, 2 oz. tubes and 1 lb. jars. Samples, literature, and instruction pads for proper home care between visits are supplied to physicians upon request. Write to our Professional Service Department.

1. Kuhn, B. H.: South. M. J. 49:1122 (Oct.) 1956. • 2. Carrick, L.: J.A.M.A. 131:1189 (Aug. 10) 1946. • 3. Hopkins, J. G., and others: A.M.A. Arch. Dermat. & Syph. 67:479 (May) 1953. • 4. Sullivan, M., and Bereston, E. S.: J. Invest. Dermat. 19:175 (Sept.) 1952.

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